

ST
and XL/XE

Issue 21 Price £1.00

Independent User Group

Atari

Monitor

In this Issue:

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Night Hunter, Fortran 77,
Discovery Cartridge,
Prospero 6 Teatz,
PD Library,
and much more!**

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**Programming
Tutorials!
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8-Bit Reviews:

Newsroom, Turbo-816, Page Marshal and Periscope Up!





ANDES ATTACK

LLAMASOFT

announce the release, on 23rd January 1989, of
ANDES ATTACK, JEFF MINTER'S new game
for the ATARI ST.

* **ANDES ATTACK** is the re-creation of a 1982 LLAMASOFT product, which was based on a classic arcade game and originally programmed for the VIC 20.

* The new **ANDES ATTACK** takes full advantage of the ST's capabilities to update the concept and to further improve the game's proven appeal - the elements of speed, strategy and control are beautifully combined. The game's graphics are detailed and amusing but the main aim of the programming has been on **playability**, the basis of sustained player interest.

* Control of the defending space craft and its weapons by mouse and keyboard is ingenious and effective - it needs to be good to give the user a fighting chance! For newcomers to such hectic action a 'Training Mode' is included in the game facilities.

* **ANDES ATTACK** will appeal to computer games players, old and new, and to arcade game enthusiasts.

* The package includes an entry form for a high score competition with a substantial prize, the final stage to be in a public venue, possibly at the next ATARI Show.

* **Recommended Retail Price - £9.95**

ANDES ATTACK — DEFEND OR DIE!

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Address Change

Please take note that the address for all correspondence to the club and Monitor magazine has changed. It is now P.O. Box 213, Southend-on-Sea, Essex, S51 3QF. If you have recently used the old address, do not worry, as all mail is being redirected to us.

Show News

There is a new show for you to visit this year! It's the Essex Computer Games Show, to be held on Friday 21st April, Saturday 22nd April and Sunday 23rd April at the Festival Hall, Basildon, Essex. Opening times are from 9 am to 5 pm on the Friday and Saturday, and from 9 am to 5 pm on the Sunday. The club has taken a stand at the show, (stand number 46) so come along and say hello, you'll be most welcome! We shall also have available the ST library disks for sale, so if there is something you want to get why not get it the show!

The Atari User Show which usually takes place at Alexandra Palace in April has been put back till later in the year. It will be at the same venue but the dates will be 23rd to 25th of June, tickets will be £5 for adults and £3 for children under 16, and this year's Xmas show will be moved to Christmas, on December 1st to the 3rd also at Alexandra Palace.



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Now you can purchase selected books from us.

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ST PROGRAMMING

By Keith Mayhew Part Seven

Continuing with resource trees, we look this time at editable text fields. This is followed by a short discussion on using a resource construction set for generating resource trees and loading them for use with your programs.

Note that the names of objects and structures referred to in the rest of this article were defined in Part 6 of this series, in issue 20.

Text Objects

The object types `'OT_TEXT'` and `'OT_BORTEXT'` are simple text objects, the latter being the same as the former but providing a box as a background behind the text. Both objects use their `'obj_name'` field as a pointer to a `'TEDINFO'` structure rather than directly to a text string, as is the case with the `'OT_STRING'` object which we have already looked at.

The `'ts_paint'` field of `'TEDINFO'` is used to point to the string to be displayed, its length, including the null terminating character, is held in `'ts_len'`. The text used to draw the text will be determined by the value in `'ts_just'` (`'OT_TXT_JUST'`) (3) is the default option, `'OT_TXT_SMALL'` (5) is the smallest font used for labelling icons.

Unlike ordinary strings, text objects can be left, centre or right justified. This is determined by the value in the `'ts_just'` field, which can be one of the following: `'OT_TXT_LEFT'` (1), `'OT_TXT_RIGHT'` (2) or `'OT_TXT_CENTRE'` (3). Justification of text strings takes place relative to their box, as are defined in their width and height fields. One particular situation where this is useful is in providing a centred title string to a dialogue. This is easily achieved by setting centre justification and making the box of the text object span the entire width of the dialogue. No matter what the length of the text string, it will always be drawn in the centre of its box and, hence, the dialogue. Note that justification is re-calculated for the string every time it is drawn, so if the string is changed then redrawing it will automatically re-justify it relative to its box.

The information governing the colour of the text, whether it is drawn in replace or transparent mode and the parameters for the drawing of the box, such as border width and fill pattern, is held in `'ts_backcolor'` and `'ts_color'`. The former is the same as the high word of the `'obj_name'` field for types `'OT_BOX'`,

`'OT_BOX'` and `'OT_BOXCHAN'` which we looked at last time, except that the character code is ignored. The latter, `'ts_color'`, is the same as the low word of the `'obj_name'` field for the above types.

When an object of type `'OT_TEXT'` is drawn, all parameters relating to the box are ignored. Only the text colour, and the replace/transparent flag are used: no background to the text is drawn - so if transparent mode is selected then any existing background will show through the text. For `'OT_BORTEXT'`, the box is drawn first, with the specified fill pattern and border width, and the text is drawn on top of that. Again, if transparent mode is selected, then the fill pattern of the box will show through the text.

Editable Text Objects

Closely related to `'OT_TEXT'` and `'OT_BORTEXT'` are `'OT_EDIT'` and `'OT_BORTEXT'`, the 'E' standing for 'editable'. These objects are drawn in exactly the same way as the text objects described above except they can be edited by the user when the program is in a `'form_dlg'` call. The flag `'OF_EDITABLE'` must be set in the object's `'obj_flags'` field for `'form_dlg'` to actually permit editing - this is a useful feature as editing of different editable objects can be selectively switched on or off as well by a program.

An editable object consists of three internal parts: a template string, a validation string and the editable text string. The `'ts_template'` field is a pointer to the template string, `'ts_validation'` holds the length of the template string, including the null terminating character. `'ts_paint'` is the pointer to the validation string (there is no corresponding length field for this), `'ts_edit'` points to the editable string and `'ts_len'` holds its length.

When an editable text object is drawn, the above three text strings are merged together and displayed as one. The template string forms the basis of an editable object: it determines which parts of the final string will be editable and those which will not. The string looks exactly like the final string except that all the characters which are editable have to be set to the underscore character. For example, if we wanted an editable text field for entry of a person's name and age we could set the template string to

Name Age

(Note that this has fixed the maximum

name length to six and the maximum age to 99. The length of this string is twenty characters, so allowing for the null character, 21 should be put into the `'ts_template'` field.)

The initial text to be displayed in place of the underscores when the object is drawn is determined by the string pointed to by the `'ts_paint'` field. For instance, the string `'GEORGE55'` will, when merged with the template, produce the following:

Name GEORGE Age 55

The initial text string does not have to fill the editable portions of the template string fully. For example, `'MARY P'` or `'JOHN'` are suitable strings, as is an empty one (i.e. just a null character). No matter what the length of the initial string actually is, the maximum possible length, including the null, must be stored in `'ts_len'`, as in this example. Furthermore, there must be enough storage allocated for the string to allow for this maximum case, as we will see later.

The validation string, pointed at by `'ts_validation'`, consists of one character for every editable character in the template string, i.e. it is the same length as the maximum allowed for the `'ts_paint'` string. Each of these characters in the validation string represents a set of possible characters for their respective positions in the template. Table 1 lists the validation characters and the set of characters they represent.

- | | |
|---|---|
| D | Allow only digits 0 to 9 |
| A | Allow only upper and lower case letters plus spaces |
| A | Allow only upper case letters plus spaces |
| n | Same as 'A' but also allows digits 0 to 9 |
| F | Allow all valid GEOMDOS filename characters plus '?', '~' and '*' |
| p | Allow all valid GEOMDOS pathname characters, plus '?', '~', '\', '.', and '*' |
| P | Allow all valid GEOMDOS pathname characters, plus '?', '~', and '*' |
| X | Allow any character |

Note valid GEOMDOS filename and pathname characters are upper case letters and digits.

Table 1. Validation characters and their meaning.

For our example, let us say we would like to restrict the characters in the name field to upper and lower case letters

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at the

ATARI

COMPUTER SHOW

MIDI

All the latest hardware and software in the rapidly expanding world of music must be on the display including keyboards, sequencers and professional studio software.

With an Atari/Midi setup, you can produce top quality music - quickly and simply - mixing out melodies in a way that's impossible with live recordings. So if you're in any way interested in making music, with your ears this is the place to come to find out all about it.

CAD

Computer Aided Design has grown to become one of the most important areas for modern computers. With a CAD system you can design houses, cars and electronic circuits - in a fraction of the time it would take you with pen and paper.

With the high speed and powerful graphics of Atari systems, it's hardly surprising that bigger and better CAD programs are packing back the floor every day.

And only at the Atari Computer Show can you see all the latest systems under one roof.

BUSINESS

Many companies will be demonstrating their latest software and hardware - specially designed to release the full business potential of Atari computers.

As well as products for the 8-bit and SE, you'll be able to try out applications for the powerful Atari PC compatible series.

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DTP

The art of combining text and pictures is big business nowadays because, with a low-cost DTP program, you can create anything from a club newsletter to a monthly magazine or book.

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The Atari Computer Show at home - with many new products and developments. Atari has grown to be one of the major players in the computer world, supported by an incredible wealth of quality applications, games and utilities - all on view at the show.



GAMES

Many computers are renowned for their skills in our favourite arcade-quality game.

The range of new software on display will demonstrate how the power of these computers is increasingly being stretched - producing faster and even more skills in a game with superb graphics.

The winning entry to the 1988 Commodore of the Year Award will be awarded, and several new exciting STES accessories will be shown for the first time.

If you're a keen game player, you'll find there's so much on offer at the show - a top of the line for real time!

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So let a great day, day - wherever you want to see what the future holds for Atari computers. We take advantage of the business on offer on your arrival on special, apple days - the Atari Computer Show is the place to go.

And if you want to see the computer show, you'll see it all the price of a single ticket!

SPECIAL OFFER

For the first time we are now offering a family ticket for just £11, allowing entry for two adults and two children. So you can save up to £3 off the usual entry price!

How To Get There

Alexandra Palace is an easy 10 min to get to by car and underground or bus. It has excellent British Rail station, just nine minutes away from King's Cross, and there's a free bus service shuttling between station and show every 15 minutes.

If you're travelling by road the show is only 15 minutes away from Junction 23 on the M25. Car parking is free.

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including spaces and the age field to only digits. This implies that the validation string will be "AAAAA99". If we wished to allow only upper case letters and spaces in the name field then "AAAAA99?" would be necessary.

Editing Text Objects

After an editable text object has been displayed, causing the three constant strings to be merged together, the object can be edited by the user whenever a "form_id" call is active. Recall that "form_id" accepts as its second parameter the index of the first editable object on which the cursor should be placed; this can be any editable object within a dialogue, or zero if there are no editable objects.

Movement between editable objects is achieved with the up and down arrow keys. The left and right arrows move the cursor within a field and the delete and backspace keys are also active. If the escape key is pressed at any time, then all the characters in the currently active field are deleted. Insertion of new characters is limited by the validation characters.

On return from a "form_id" any editing which has taken place will have modified the appropriate "to_text" string. Note that if any of these strings was shorter than its maximum then the underscore characters, displayed to fill up the remaining positions, are NOT returned.

Caveats and Bugs with Editable Objects

If, initially, you wish to display an empty edit field, as is the most common, then a "to_text" string consisting of just a null character is sufficient. There is, however, another way of achieving a blank field, that is by placing the symbol '@' in the first character position. Regardless of further characters in the field, the whole field is displayed as blank. Unfortunately, this facility is provided on user input, so that if an '@' is typed in the start of a field followed by 'X' then the rest of the field just disappears. It will not, however, delete the rest of the characters unless you move the cursor back to the left. If more characters are typed after an '@' then they will be entered but not displayed; it seems best to avoid the '@' character if at all possible!

There is a very nasty bug in the validation routine for editable objects in many old ROM machines. This causes the whole machine to crash if you type an underscore character in a field which is being validated by anything OTHER than 'F' or 'X'. To test to see if your machine has this bug, display the standard GEM file selector dialogue and type an underscore on the path name field at the top.

Note that the value in "to_text" never varies, even if a field is completely empty after an edit, and that it should not be altered by your program either.

One useful but, to my knowledge, undocumented feature of editable objects is the fact that if a character is typed which is not valid for the current character but is in the template string, forward of that point, then the cursor is moved to the start of the field following that template character, the gap being filled with spaces. This is used for binary entry where the "1" in the template string (between the main name and the extension field) will cause the cursor to move to the extension field if a "1" is typed anywhere in the name field. Another example is data entry where a template string of "Date = / - / - " and a validation string of "999999" will cause the cursor to move to the next field if a "/" is typed.

Producing and Using Resource Files

As has been said several times in this series, the easiest and least error prone way of producing resource files is by using a resource constructor kit, such as the highly recommended R-Resource from Ramus.

Production of a typical dialogue consists of selecting a "form" or "name" to hold the text, opening this and placing a box object at the root followed by the placement of objects within the root box. You will find that all resource editors let you name boxes, i.e. the form or panel, and the objects within it. (Note that you do not have to name all objects, only those you wish to reference directly from within your program. Objects can also be sorted by resource editors thus producing a pleasing effect when the text is shown. There is another advantage to sorting objects. If you have several objects all within a common parent, and they are sorted, then you only need to name the first of the objects in order to reference any of them. This is because the name of an object represents an index number, and thus adding one to it references the next object, adding two to it references the one after and so on. As all the objects are sorted they are guaranteed to have consecutive index numbers.

A resource editor will let you have many trees all within the same resource file and copy or move objects between them. The maximum limit imposed on all the data in a resource file is 64K. However, some editors restrict you to 32K. Once written to disk the resource file is given the extension ".RSC" and a header file is also written containing all the names and index values of the objects in the resource file. For the C language these names are declared with #define; for other languages it may consist of constant declarations (Pascal and Modula II) or DATA statements (BASIC and Assembler). Check before you buy a resource editor that it will generate the right type of header file for your language(s) - all of them support C. The header file is included in your program in the normal way, i.e. #include for C.

To load a resource file into memory a program calls "res_load" with a pointer to a filename string. It is best to avoid specifying a drive name in the string so that the resource file can be loaded from any drive and directory - "res_load" will return zero if an error occurs, such as file not found. The last thing a program must do before calling "res_load" is call "res_free" (with no parameters) to free the memory allocated to the resource trees.

Note that you cannot load two resource files simultaneously. If you have a situation where you have, say, different resource trees for different resolutions, then create several resource files and decide which one to load as your program starts up.

You will find that resource files can be made resolution independent by using an editor's character wrap facility. This ensures that all objects are aligned, or straggled, to character boundaries. The advantage is that resource files specify objects in terms of character rows and "res_load" converts the objects to pixel co-ordinates, multiplying the character co-ordinates by the appropriate value for the current resolution.

Once loaded the address of a particular object can be located with a call to "res_getobj", for example "res_getobj(R, TREE_NAME, &tree_p)" will return the address of the first named "TREE_NAME" into the "OBJECT" pointer "tree_p".

The zero parameter at the start of "res_getobj" indicates that the name refers to a tree. Other values are allowed for this parameter to get the address of, say, a specific "OBJECT" structure. Do not, however, use this function for getting the address of an object, the reason why it will not work is that the index produced by a resource editor is not the same as the one this function expects! If you want the address of a particular object, say "MYBUTTON" in "TREE_NAME" then use "res_getobj" with "TREE_NAME" as shown above, then use "&tree_p[MYBUTTON]" to get its address. To get the address of a sub structure of an object, such as "TEDINFO" then do the following to obtain its address:

```
TEDINFO_p=&tree_p[MYTEXT]  
obj_ptr
```

A related function to "res_getobj" is "res_addr" which allows you to set the address of particular trees and objects within the resource loaded in memory. This seems to me to be a completely useless function, as does "res_objbit" which performs the conversion from character to pixel co-ordinates "res_load" does automatically! If anyone knows of a genuine use for these last two functions, please let me know.

Next Time

Having seen the theory behind editable objects, next time we will look at an example program. We will also see how menu bars are created and used.



Night Hunter

From US\$140
Price £19.99

Review by Stuart Pearce

If you like macabre, creepy, a good horror story, well let me tell you that US\$140 have brought the gruesome vampire tale to the computer screen, in the form of a fantastic game called Night Hunter.

In the game, you play the famous vampire Count Dracula who needs to steal several holy medallions (it doesn't actually say how many medallions you have to find). On finding all the medallions he will create chaos on Earth and become its master. But one man, Professor Van Helsing, stands in your way (that's not counting the army of vampire fighters, or the witches who fly along on their broom sticks and cast spells which drain your energy).

The game features 30 different levels of 20 screens each. To pass from one level to the next, you must collect eight objects, three parchment scrolls and five keys, and find a magical door (blue or red) which leads to the next level. To help you through the levels you can transform into a werewolf or a bat. A blue pillar on your instant-read panel shows your transformation time. Each time Dracula is transformed into a bat or werewolf the pillar will decrease. Once it has disappeared Dracula will become a vampire again (if you have taken the shape of a bat be careful not to transform back into a vampire whilst you are over water). An orange pillar shows your energy level. Each time you are hit by an enemy you will lose some energy. Dracula will die when there is no energy left. You can gain energy by grabbing an enemy (be it an archer, a strong arm man or an axe wielding monster) and sucking his blood. When you have finished sucking all of his blood he turns into a

statue and as you let go it falls to the floor with a wonderful bone rattling sound. This method of killing your enemies cannot be used to kill witches or Professor Van Helsing, also if you find it difficult to get close enough to the enemies' feet not, one solution is to turn into the werewolf and just close them to death, or, and I find this a lot easier, simply turn into a bat and when you're next to an enemy transform back into Dracula and quickly grab him and suck his blood.

Night Hunter has amazingly crisp graphics, good playability and sound effects which really do the ST justice. But it does have one thing which could have been better, that is that the screen goes from screen to screen (meaning, it doesn't scroll). Apart from that though, I found it one of the best computer games I've seen for a while (and believe me, I've seen quite a few).



Wanted

From Infogrames
Price £19.95

Review by Bill Dyer

Infogrames have brought the Wild West to the ST! The game is set in Arkansas in 1880, you play the role of a bounty hunter set on apprehending or killing four notorious bandits. Each bandit is worth \$5,000, \$10,000, \$15,000 and \$20,000 in ascending order of nastiness. Each bandit also has a gang of assorted hired killers and desperados which he sends against you. As you advance up the town's main street, or the railroad, or the canyon, etc. the bad guys come pouring out of hiding with guns blazing, you must dodge and weave while firing back as best you can. To help you, you are able to collect a number of special items which are hidden in barrels, just shoot the barrel and the item appears, pass over it to collect it. You can collect pistols to increase your firing power, rifles for long distance shooting, cowboy boots to speed your movement, dynamite to wipe out whole screens of badguys, a sheriff's star makes the whole task easier, ammunition to stock up your bullet belt, temporary shields to protect your little and heads which give you added lives. You'll also find some loot from time to time. Avoid the traps, however, they will drain you of 5 of your hand count items.

Wanted is a fast and furious game to play, in fact that is the only way to survive! Hysteria and you're dead! The graphics are top class and the game play exceptional. I think it's one of the best 'shoot 'em up' I've come across for a while! Wanted should be on everybody's wanted list!



Captain Fizz Meets The Blaster-Trons

From Psydupes
Price £14.95
Review by Dave Johnson

This game is pretty unique in the annals of ST games, it's a two player game! Well? That's not unique I hear you cry! But in this game although one person can play the only way to win is if two of you simultaneously zap the nasty Blaster-Trons! This means that the antisocial tendencies of most computer owners as sit alone in their bedrooms late at night tapping away just doesn't work here, you just have to invite a 'friend' round (assuming you have any left!) The only thing I can't figure is whether player one is Captain Fizz or player two? Well maybe player one is Captain and player two is Fizz? Only Dr John Ellison (founder of the Quorn's Cloned Highlanders, the revered organisation to which Captain and Fizz belong) will know (maybe)

The screen is split into two halves (one for each player) and gives a birds eye view of the mazes through which you must both pass. You move your GCH by joystick, firing at the Blaster-Trons as you go. There are 22 levels to get through to reach the control computer, which you have to destroy. By destroying the alien generators on each level, collecting keys and things you will be able to descend to lower levels. During the fighting audio signals are given to indicate achievements, enabling you to enter life, come barriers and solve puzzles.

I found it to be an addictive game and I spent many happy playing hours on it. Why don't you do the same?



Prospero Fortran 77

From Prospero
Price £329.95
Review by Nicholas Lusty

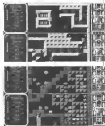
Prospero have recently released new versions of their Fortran and Pascal compilers. In the past Prospero has concentrated on producing only compilers, assuming that the user would already have access to an editor. The compilers were reliable and conformed to official language standards. However the support for GEM was very poorly documented, consisting of thirty pages of sub-program definitions but no details of what they did. This made any GEM programming virtually impossible, even with the aid of a GEM textbook. The programs created by the compiler required a resident 'library' to be loaded into memory, usually from the AUTO folder. This made the program files smaller and speeded up linking, but was unpopular with many users.

The new version, now entitled 'Prospero Fortran for GEM', bears little resemblance to the original system package. Gone is the GEM style loose leaf type written manual. It is replaced by a bound set of three slimy 250 page comb bound type-set books. The first of these are the main Fortran manual which contains details of the system, installation and operation of the package, and a definition of the language supported. It is, as before, primarily a reference manual, and certainly not intended as a Fortran tutor. The other two manuals provide detailed documentation of the GEM VDI and AES subroutines. The explanation of the methods of using GEM, and the examples used are clearer than any I

have seen before. In addition, several complete example programs are included on the disk and I was seen successfully modifying them and enjoying the process of GEM programming without crashing the system. Previously I had found GEM programming inevitably ended in a line of 'bombs' across the screen.

But the biggest improvement to the package is in the software. Where the old package consisted of a compiler, GBT's linker and a set of libraries, the new package is a completely integrated system. The core of the system is the Workbench. This is a fully featured GEM based program editor with all the usual trimmings, and Wordstar compatibility. However in addition to the usual editing functions, the drop-down menus also contain entries to compile, link, run, cross-reference and debug the programs, in a similar style to H&S's Devpac editor. The workbench then loads the necessary overlays and performs the function required, returning to the editor at the end. In addition, if the compiler finds an error in the program, the user can return to the workbench with the cursor automatically pointing at the error. However the editor only renumbers one error per compilation.

Users of Prospero Fortran may notice a few special features of the compiler retained from the previous version. Fortran does not usually demand that simple variables are declared; it assumes that all variables beginning with the letters I to N are integers, and that all others are real. Of course, if double precision, complex or array variables are required then they must be declared explicitly. However Prospero Fortran allows the user to specify that ALL variables should be declared. If the user



takes advantage of this option. It increases the amount of typing required, but allows the compiler to highlight any spurious variable created by a typing error. The compiler can also be instructed to add additional code to check that array subscripts and assignments are within legal range.

A major addition to the new system is the symbolic debugger, PROBE. Probe is a source line debugger that enables the user to follow the original Fortran program lines as they execute. It is possible to view the variables as they change, modify them, jump around the program, set the program to run until a line is reached, a variable altered to a particular value (or simply modified to



any value), or any combination of these. All the variables and source lines are described as in the original program, not by obscure addresses. The user need not know anything about machine code. The debugger is also able to tell the user how many times each line has been executed. This enables the user to find unused lines and perhaps to think carefully about improving the efficiency of the most frequently executed lines.

Conclusion

The new package is a comprehensive Fortran development system. The integrated design of the package reduces the amount of effort required to develop a program and considerably speeds up development time, the new compiler running much faster, and producing the same reliable code. The debugger enables the user to find errors quickly if I have any complaint about this package, it is that it would have been nice if the editor could remember ALL the errors in the source program. I have seen this done on another editor written by Keith Mayhew. Perhaps Progress could consider this as a later upgrade!

Discovery Cartridge

Review by David Eaton

About 18 months ago, Happy Computers announced they were to produce a back up system for the Atari ST computer. Unfortunately things did not go very well, and a later delay after delay the final product reached the UK in November 1988.

Happy Computers first made a name for themselves on the Atari 8 bit computers. They built a custom designed pc board, that fitted inside the 1050 and 810 disk drives. It gave these drives, undoubtedly, the best back up system at that time. It offered two double density, high speed read and write, plus the back up of most, if not all protected software around at that time.

The ST Discovery Cartridge is a completely different back up system altogether. Firstly, as its name suggests, it is a cartridge. A nice fat thick square ST grey cartridge and it can be left in the cartridge port at all times if you so wish. Any software that is backed up via the Discovery cartridge, does not require the cartridge to run it.

Inside the Cartridge is HART. This is the custom disk analyzer chip. Unlike the 8 bit Happy, it does not insert the disk drive, so there is no need to open your computer or disk drive. You can be ready to use the cartridge within seconds. First make sure everything is turned off, plug in the cartridge, you then plug a lead from the cartridge to the floppy disk plug on the back of your ST and you are ready to begin.

For £175 the Discovery Cartridge does seem to offer ultimate disk back up. Because it is a cartridge you only need to buy one, and not one for each drive. It supports two drives, and there is the option to add another two. It does not give super fast read and write because of

the way the ST disk drives work, but it does slightly increase speed by only needing 1 revolution of a disk to format and write, where as the ST disk controller needs 1 revolution to format, and a further revolution to write.

Disk back up couldn't be easier. Just load up the software, and select disk to disk, copy, follow the prompts and you should have an exact duplicate. To speed things up, there is a file called DISKUPCFG, this is the backup control file, which 'talks' the back up program how to read the source disk. The file contains many ways to read the source disk, not protected double sided etc. There is also full documentation on how to edit this file so you can tell the back up program how to read the source disk. Happy are planning a library of such files, so that if there is a disk you cannot back up, the way to do it should be in the library.

The cartridge will also back up Amiga and Macintosh software, plus for £250 you can buy the option 1 cartridge, which contains real time clocks, extra drive sockets, and the facility to add Macintosh ROMs. The ROMs are not included.

There is also the facility to copy the whole of a disk to a file, this file could then be archived and transferred over a modem. This could save lots of time if there are lots of small files to transfer, as all the small files would be made into one big one, although blank areas of the disk would also be contained in the file. The only disadvantage is you need a Happy Cartridge the other end, to copy back from the file to disk.

The manual that comes with the cartridge is very informative and easy to follow, but it comes on the disk, and unless you have a printer it can be a pain. The software for backing up disks is the usual Happy style software, it is not fancy, it just does what it is supposed to. There is also a cartridge letter program included.

Whether this will encourage piracy is another thing. Happy think that everyone should be able to make a back up of all the software that they purchase, but they make a point of saying that piracy is illegal, the following is an extract from the manual.

"Software authors work very hard to produce the marvellous programs that make your computer so much fun and so useful! Generally speaking, they are not doing this for the fun of it. They do it to make money. They have to eat, make rent or mortgage payments and purchase cars, VCRs, and clothes (no order of importance is implied). They need to be compensated for their work, like any other person. Copy protection is placed on disks as an attempt to ensure that authors receive fair compensation for their work. Our disk backup system was created to allow users to make backups. It is not our intention to deprive authors of income. With a powerful backup system such as ours, the copy protection on the disk will at least serve as a reminder that authors should be compensated."

"There really is a need for backups. Disks can and do fail, for a whole variety of reasons. Almost anyone who has used computers and floppy disks for some period of time can attest to this. The safest thing to do is make backups, and put the original away for safe keeping. It's best if you also make a backup to stash away just like the original. Check the laws of your own locality before copying any computer program."

For £175 you do seem to get the best software backup program available. At the moment there is no software it will not backup. There will no doubt be drives, but I doubt if they will be anywhere near as good as the Happy.

For large information pack, including technical notes of the Happy Cartridge send a large SAE to: Stockport Dept Happy, 15 Woodlands Road, Birmingham B30 1UE.

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Cartridge could lead to your prosecution.

GFA Basic V3

From Glenside
Price £65.00
Reviewed by Keith Mayhew



GFA Basic version 3 is a fast and flexible Basic Interpreter. It is supplied on a single disk containing the interpreter and several sample programs, plus there are a host of examples from the manual already typed in ready to run, each demonstrating a particular feature of the Basic. Also provided is a run time only version of the interpreter so that programs can be run directly, without having to load them into the editor.

The manual consists of nearly 500 pages supplied in a good quality ring binder. It is a comprehensive manual, split into chapters, each covering one aspect of the language, such as numerical operators, control flow, input/output, etc. Although the descriptions of each command are quite good, a beginner may find they have to rely more on the examples provided to learn the language as there is no tutorial, except for a very quick introduction.

The editor part of the interpreter is fast automatically formats your program and will not let you leave a line until it is syntactically correct. This latter feature ensures that you will not get silly syntax error messages half way through running a program as all of them will have been removed.

I personally felt it was a shame that the editor was not implemented in a GEM window environment. It takes a full screen in text mode and uses the two top lines to provide a crude form of menu which you either click on with the mouse or can operate through the function keys. Part of the menu area also doubles for some input and status information. A

clock is also available, continuously on display.

As GEM is not used, you cannot move up and down the text with the mouse (other than clicking on the top and down many entries) and there is no feedback as to whether you are near the top or bottom of the file. Apart from this the editor is quite usable, having search and replace facilities as well as block movement.

This version of Basic has a very comprehensive number of operators and built-in routines, these are often different ways of achieving the same results - 'the choice is almost bewildering'.

The built-in variable types include bits, bytes, double bytes, quad bytes, floating point and strings. Arrays can have as many dimensions as you like as long as it has less than approximately 65535 elements overall. There are a large number of numerical operators, including increment and decrement functions, as in the C language. For floating point, all the standard trigonometric functions, and their inverses, are included. In particular, it is worth noting that they have implemented two special, alternative, versions of SIN and COS which use an internal look up table to speed up their operation considerably. These were provided for graphical work and can be used down to an accuracy of one sixteenth of a degree.

As well as boolean operators such as 'and', 'or' and 'exclusive or' there are a large number of operators to work on individual bits, including the usual boolean operators and operators to set or clear individual bits.

The number of control structures, such as 'IF THEN ELSE', 'WHILE' and 'REPEAT', are too numerous to mention, but there seems to be every type of control structure you're ever likely to want. Provision is also made for user-defined functions and procedures. Local variables, parameters and 'var' parameters (as in Pascal and Modula II) are also allowed. The latter feature is something most Basicists cringe and yet is a very useful device - it allows variables to be 'passed by reference' (as opposed to being copied) and hence gives a clean way of updating variables not local to a procedure. Error recovery is also well supported, and the 'EVERY' and 'AFTER' commands allow procedures to be called either at regular time intervals or once after a pre-determined time, respectively.

There are many other built-in routines including two good sorting routines (quick sort and shell sort), array copying, memory block copying and string handling operators and many input and output functions.

There are also implementations of most of GEM's VDI commands as specialised, ready to use functions. Menus can be built and used easily, and there are also a small set of facilities for dealing with windows which, although rather limited, are sufficient for many programs. For greater flexibility access is provided to all the system calls from the A line graphics routines: HSCS, GEMDCS, GEMACS and GEMVDI.

Overall this is quite an impressive package with a well written, reference style manual with plenty of examples for each command. The language seems to have included ideas from many others. This is a good thing if you are keen on testing such a large variety of facilities but on the other hand it may make learning the language a little harder, especially if you are a beginner. Nevertheless, there are certainly many ways of achieving many effects which, otherwise would require a great deal of effort. It seems to me that this Basic is trying to supply something for everyone. Fortunately, this means that it is likely to have the most of the features you are looking for in a Basic!

Sprite Master

Authors/ Measm SMITH and KNOFF
Distribution: Soft Bits
Cost: £24.95
Reviewed: M J Springer



This product is marketed in a small, neat and colourful plastic box and contains a single program disk plus a small, but very well written manual. Naturally, I tried to load the program into my memo system, first problem: 'it only works with colour!' I sincerely hope that this feature is very quickly implemented. It is possible to have sprites in monochrome, you know! This is a great shame, I am writing a little program which is crying out for animation! There is no disk protection, the password/manual protection is used

A sprite is the little character that can be made to wander across the screen, in front of and behind the scenery. The most frequent use of sprites is in the games market, although there are many other uses! *Sprite Master* allows you to design a sprite from 16 x 16, up to a massive 144 x 84, pixels in size and in sixteen colours.

From the title screen one can select through into boxes: **LOAD SCREEN FILE, LOAD/SAVE SPRITE, UTILITIES, GRAB, DRAW, VIEW SPRITE, GUTS** and **INFO**. These are quite self-explanatory, so down to action! Pressing **DRAW** allows us to access the main editing system. This is divided into three sections. One has a number of editing tools on display, the next in the top right-hand corner is the sprite and on the left, a magnified image of the sprite to ease the design. The tools consist of **DRAW LINE, BOX, CIRCLE, FILE, CLEAR, COPY, OVERLAY, FLIP, SCROLL, ROTATE, PALETTE, RESIZE, EXCHANGE COLOUR, OUTLINE, UNDO, EDIT, SPRITE FRAME SELECTOR** and the **GRAB X-Y CO-ORDINATOR**.

The manual gives a very clear description of all of these functions. In addition, the technical features are also well covered. On the disk are a number of files that have been configured for some of the more popular floppies which demonstrate the programming techniques and commands so that you can incorporate sprites into your own programs.

In use I found the **LOAD SCREEN** feature very useful. The program will accept most of the popular, well-established, ART programs: **DEGAS, NEOCHROME, ART DIRECTOR** and so on. I also believe that with **STICS** it is possible to 'fit' sprites from other programs! Now that introduces lots of other very interesting possibilities with this program! With a screen loaded, by using the **GRAB** feature, any suitable portion can be 'fitted' into the **EDITING** areas and a number of animation frames can be created. This feature can produce some very interesting effects. Incidentally, the manual provides some interesting discussion on the subject of **ANIMATION**.

For 'straight' sprite creation, the first image is held as a transparency so that subsequent images can be accurately drawn - just as professional artists do in the Cinema Industry!

The program utilises all the features worked extremely well, due to the ease given to the writing of the manual. It even includes a telegraphical list at the back as a source of further reading for the interested owner!



Aspet from the inability to create sprites in monochrome, I found the program to be designed well, carefully written programming examples demonstrate the necessary input into one's own. The provision of a number of useful supplementary programs results in an excellent, modestly priced, powerful product.

Font!

From Message
Price £24.95
Reviewed by Keith Hayhoe



The ST machines have always had the facility to handle multiple fonts of different typologies, sizes and styles. Unfortunately, the part of the GEM system which actually loads the fonts into memory, called **GDCS**, was never placed into the operating system ROMs. **GDCS** was eventually released in the form of a small 'patch' program (placed in an **AUTO** folder) but it was such a long time after the ST was launched that most software, by that time, either did not support multiple fonts or had invented their own methods for loading fonts.

Since **GDCS** became widely available many programs now support it and allow multiple GEM fonts to be loaded and selected at will, for example, desk-top publishing packages and word processors. The only problem now is that the font files themselves are hard to find! The main reason for this is that designing a font from scratch is not an easy task. The problem is made worse because a font has to be produced in a variety of

sizes and then the whole lot has to be re-worked for different devices, such as laser printers, dot matrix printers and the different screen resolutions.

One answer to the shortage of fonts is to design them yourself, and this is where **FONT!** comes in. **FONT!** is an easy to use font editor, supplied with **GDCS** version 1.1 and a collection of fonts of the 'various' style typology.

Once a font is loaded into **FONT!** it is displayed in a small window at the top of the screen. Below this is a large edit window where any character from the font may be displayed and edited on a grid, the actual size of which can be increased so as to enlarge the character you are working on.

There are numerous facilities available from the drop down menus to perform operations on an individual character or the whole font. For example, characters can be inserted, flipped, shifted, rotated by 90 degrees or have columns added or removed. This latter feature allows you to define proportional fonts, i.e. each character does not have to have a fixed width so that an 'I' can take up less room than a 'w'.

For drawing new characters, facilities are provided to draw boxes, circles and arcs by simply specifying two or three points with the mouse. A buffer is provided where characters, or parts of them, may be copied to and then pasted on to other characters, either overwriting them, or merging with them.

Operations on the whole font include adding or deleting rows, scaling by a percentage, scaling to a specific 'point' size, scaling to a different device and changing the font name or ID number.

FONT! also allows the loading of non GEM font files. It can load files from the old version of **DEGAS**, **Paintbrush**, **N-View** or **Hippoford** and converts them into standard GEM files. More exciting is the ability to load **AMIGA** or **Macintosh** fonts, if you can obtain them, and have them converted for use with GEM. Apparently many of these fonts are available on bulletin boards or through public domain outlets for those machines.

Altogether, **FONT!** is a useful and flexible program to have if you are interested in designing GEM fonts or for simply converting **AMIGA** or **Macintosh** fonts. The manual is quite well written and describes many of the technical terms associated with fonts. For the more advanced users, there is even a description of the contents of a general GEM font file. Lastly, the manual has many hints and tips on fonts which are hard to find elsewhere.

Prospero C

From Prospero Software

Price £299.95

Reviewed by Keith Mayhew

Prospero Software seems to be the first and only supplier of a full ANSI standard specification C compiler for the ST.

For those interested, the ANSI standard ties up many of the loopholes in the previous definition of C and adds many features to the pre-processor and the language. The main additions include: the ability to make strings out of macro arguments; joining tokens together; the 'void' type for indicating no return value from a function; proper constants and enumerations; passing of structures by value to and from functions; initialisation of 'auto' arrays and structures; and, most significant of all, the new syntax for function declarations.

This last feature of the ANSI standard permits type checking of all arguments in function calls, and hence removes one of the biggest problems C had, namely that you could pass, say, an integer to a function which was expecting a pointer - with disastrous consequences. Furthermore there was no way you could find this type of problem without studying the listing very carefully, as the compiler could not report the error!

I should point out that the ANSI standard for C still appears to be in the draft stage, but the full standard, when published, is not expected to contain any major changes, possibly none at all. A text which backs up this claim is that Kernighan and Ritchie, the authors of the definitive book for the 'old' C, 'The C Programming Language' from Prentice Hall, have produced a new ANSI edition of the book which has been on sale for quite some time. If you want a definition of the ANSI standard for C, and want to know the changes from the old C, then I can recommend you buy this new edition of the book.

The Prospero C package is supplied on three disks containing the compiler, the 'workbench', the linker and several other utilities, as well as some fairly good example C programs. There are four manuals, all written to a high standard (ring bound, and bound in a sturdy protective container. Altogether, this amounts to approximately one thousand pages of documentation.

Three of the manuals are dedicated to describing the C library, the GEM VDI library and the GEM AES library, respectively; all the library functions are well documented and there are a large



number of examples showing their typical usage. The manual for the C library indicates which functions are part of the ANSI standard and which are specific to the ST; this is useful if you are porting programs to other compilers.

Note that the ST's GEMDOS, BIOS and BIOS calls are not documented in any of the manuals, although they are mentioned. It is, however, possible to call these routines from Prospero C as the library calls, and the appropriate header file has been supplied. Some of the most common of these operating system calls have been implemented, and documented, as part of the C library, although under different names.

The last manual of the four describes the overall product and provides descriptions of the programs, utilities and other files on the disks. There is a section detailing the particular implementation details of the Prospero C compiler and another giving a full description and definition of the ANSI C language. Eight appendices include, among other things, the compiler's error messages; run time error messages; the use of Prospero's FORTRAN and Pascal languages with C; and a small glossary of some technical terms.

The operation of the whole Prospero C package can be controlled from a single GEM based program called the workbench. The workbench has an integral editor for the preparation and

revision of C programs, or any other text files. The editor is easy to use, allows several files to be loaded at any one time and provides block copy, move and delete functions between windows. There are search and replace operations, as well as a 'goto line number' facility. The function keys can be programmed with any characters including the control key commands of the editor, thus allowing you to build your own, composite, commands. Also provided is an option for insert or overwrite mode, auto indenting, and an adjustable tab width. My only real complaint about the editor is that it does not support 'real' tabs - that is they are all converted to spaces. This expands source files unnecessarily and makes deleting a slightly longer process due to all the spaces to be removed.

Operation of the compiler and linker from the workbench is very simple and you have a choice of compiling the file you are editing or one from disk. If the former is chosen, the compilation process is speeded up because the file is read direct from memory. The progress of the compiler and linker is displayed in a dialogue box, which also reports any errors found. A particularly good feature is the ability to pause on errors or abort compilation or linking at any time. If compilation is aborted when compiling a source program from memory the source is automatically placed on the line where

the last error occurred.

The compiler itself comprises two passes and operates at a reasonable speed. Options can be specified from the workstation, such as the logging of all errors to a file, the insertion of run-time checks for array bounds and null pointers, and a facility for enabling strict checking of the source for conformance with the ANSI standard. These options are a great help for finding potential faults in C programs.

The linker is GST compatible and can link any number of object modules together with the libraries. For simple single module, programs linking is a very simple task. For multiple modules it is required that you build a special linker control file. This is a slight irritation but is compensated for by the flexibility it provides in control over the linking operation, such as specification of stack size, etc.

Once compiled and linked, programs can also be run from within the workstation. Options allow you to run with or without GEM and with or without

a command tail. In particular, note that you can provide a command tail to a GEM application, not just a TOS one. A libraries program has also been supplied so that you can build your own libraries of commonly used functions and extract or merge modules from different libraries.

Prospero's symbolic debugger, called Probe, is provided for the tracing and examination of C programs at the source level. I.e. you can refer to any symbols in the program without having to know their actual machine addresses and lines in the original program can also be displayed. Probe lets you examine any variables or data structures and change their values; variables can be 'watched' while the program executes, printing their values if they satisfy certain conditions and stopping execution, if required, the running of current function calls can also be displayed. One particularly useful feature of Probe is its profile facility which counts how many times each function has been called during an execution. This allows flowchart minded people to optimise the functions which

are being called most frequently and thus significantly reduce overall execution time.

In conclusion, Prospero C is a good quality package with above average documentation. With full support for the ANSI standard and facilities for run-time error checking, as well as the Probe debugger, it provides an excellent environment for the professional development of C software. The only obvious utilities missing are a 'make' program and a resource editor for GEM resource files. Both of these are available from other companies however.

For those of you who wish to start using C for the first time, I suggest you consider Prospero C very carefully. It provides a very easy to use environment whilst offering you the safety of the ANSI standard, eg type checking on function calls. On the other hand, you already own a C compiler and wish to use the ANSI additions you will still be able to compile old C programs as the ANSI standard is mainly a list of extensions.

Completed - in triplicate

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For some two years Prospero have provided the complete programming solution to the Atari ST and GEM, provided you wished to program in Pascal or FORTRAN, and indeed a good many of you did. However it was always clear that a hole existed in the market for a top quality C compiler with full access to GEM and an easy to use environment. We believe that we have filled that hole.

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We've mentioned the 'environment' but people who don't know Prospero might not appreciate the full extent of what we put in, so here goes: Compiler, Multi-window editor, super-fast linker, libraries, source level symbolic debugger, program cross-refencer, documentation, technical hotline support and example programs. For the really heavy duty programmer we have hardware floating-point libraries available as an extra.

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Midistudio is a 20 track, 16bit Music Studio. The Mid software package is a professionally priced alternative to Mid music recording and includes the following features:
20 tracks each occupying one of 16 individual channels, each track can be triggered up or down 1 octave, the main master frequency has two track controls with independent volume sliders for each track, note editing facilities including editing of note values, duration, and velocity, plus full scale, automatic transposition, and auto chord, and full control over phrasing is offered through Chording, transposing, and phrase programming software pages. The integrated facilities allow storing and saving a project on any of the 37 tracks. This package is very large and is a strong competitor with the 31.

"Out performs Pro-24 v2.1 in almost every way"
Atari ST User Jan 89

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The Image Scanner is a peripheral for the ST which can provide high quality graphics, digitising for a range of the use of other applications. This device will allow you the convenience of the 34 and 34.5 inch resolution, allowing it to convert images which fit easily in the format of any system. Scanned images can be stored on one disk, or on two disks. The software currently scanning resolutions of 1024x216, 640x480 and 1000 dots per inch horizontally. An example disk is available which contains a slide image of a woman's face with the system set to scan at 1024x216, 1000 dots per inch, which is a resolution no picture of a woman.

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Quick List Plus is a utility that compiles a directory of your files. Selects disk or screen, reads any drive, including hard disks. Prints output for fast copy of desktop.

Mastercard is a formatter that optimises disk space, allows an extended sector and track format and speed format.

Fixdisk is a utility that repairs other part of a problem file for use in fixed programs, supports CFA, FAT, ISO9660 and ST format and a Digis, ScanDisk and AB Animator compatible.

TRILOGY £12.99



AB Animator £14.95

AB Animator is a utility for creating and animating graphics. It supports GFA, ISO9660 and FAST loaders and is compatible with 16bit and 32bit systems. This is the full version which is suitable up to 30 day trial of 30 pixels wide to 30 pixels high.



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ST NEWS

Tankattack

The scenario: each player takes the role of the General commanding a Tank Corps of one or more armored divisions. Each division comprises eight tanks and four armored cars. The objective is to either capture enemy headquarters or annihilate all enemy forces. The outcome of each game is affected by weather, morale, skill, judgement, planning, foresight, careful management of rebuild and repair facilities and luck!

Tankattack combines a computer game with a board based strategy game and is for 2 to 4 players. It includes a 41 cm square game board, 98 tank and armored car playing pieces and a manual. To be released by CDS in January at £19.99



Ferrari Formula 1

This game is a detailed driving sim which brings together the notion of driving a Ferrari F1/86 with the strategy required in managing a team. It offers high speed action on authentic recreations of all 16 tracks from the 1986 racing season including Monaco, Detroit, Monza and Brands Hatch, modelled down to the background scenery, weather conditions and length of track. The opposition consist of the world's top drivers: Alain Prost, Nigel Mansell, Ayrton Senna, each with their own unique driving styles.

The player can check his car's vital statistics before taking to the track. Moreover, the computerised coach will offer his advice. The comprehensive workshop allows the engine to be changed and the suspension,

aerodynamics and gear ratios to be adjusted for different circuits. A fully animated wind tunnel will check your dynamics and chart your car's performance. The tyre room will test the fuel mixture, angles, RPM turbo boost and electronics. The car can be tested further at the Ferrari test track in Fiorano or taken for some private laps.

Once on the track, the player is presented with a first person perspective of the F1/86 dash board showing oil pressure, water temperature and fuel gauges, turbo boost control, moving gears and steering wheel, and twin scrolling rear view mirrors.

Over the course of a season, the player must face the full 16 track schedule to accumulate enough points to become Formula 1 champion.

Electronic Arts have scheduled it for release on the ST in March at £24.95



Coming our Way?

The following products were exhibited at the Commodore Fair in Las Vegas in November, I wonder how many will make it to the UK? Nite Light Systems of Billerica, Massachusetts demonstrated the Lorach R5232 Local Area Network. One 1040ST is a host computer and can support up to seven nodes of computers or serial printers. Touch screens or bar code readers can also be supported. Nice & Software of Nicholas, Ontario, Canada had an 1040ST system that handled inventory control and register using bar codes, sales clerk tracking and a full complement of retail needs. Castech Software Systems (P.O. Box 147, Cranshaw, MD 54030, USA) has COM602, for my ST or Mega with at least 1 Meg. The price of \$199.95 includes an editor and a command line

interger shell that uses UNIX style commands. The shell can be bought separately for £19.95 and will work on any ST.

JRI (P.O. Box 1277, Pittsburg, CA 94565, USA) has GENlock which allows drawings and animation programs to be used in medium resolution modes to be mixed with an external video source such as a VCR, or camera. While it is designed for NTSC signals (not European standard) and requires a Mega 2 it has some features that surprise genlocks for the Amiga. GENlock doesn't have unstable jumping characteristics. It allows the fading out and fading in of graphics or picture. On other systems this is done by animation shading. JRI plan to have a cartridge version available by mid 1989.

Nerik Computer Graphics (Sydney, Australia) had a system to transfer graphics from the ST to 35mm film with a suggested retail price of \$650.

Coming from Microdeal

New release from Microdeal is *Guardian Moon*. Eight of the most ruthless war lords have been singled out from the vast ranks of Earth's most evil tyrants, and they intend to invade Corgoradus and eliminate all the 'dogooders'. However, you think you are the most sedate, psychotic terrorist of them all and you decide to take on the ruthless release all on your own! But in your path lie the *Guardian Moon* which you must destroy before you can open up the way for the rest of the outlaw fleet to invade Corgoradus. Price £19.95.

Due for a February release at £19.95 is *JUG*. You take the part of a humanoid composed of Titanium (sounded and other organic materials, built in the year 3642AD and reborn) JUG because of your latent chemical profile which can transform into many different shapes. Your task is simple, within the living core of the planet Spinax is a deadly virus causing it's host to malfunction and all the inner sanctums to die as the life force is diminished. This planet is divided into four zones, each of which has four sectors. Trap doors in the floor and holes in the roof will enable you to move up or down a level. You must find and destroy the deadly 'tumour' in the deepest level with all haste!

Other products coming from Microdeal in the near future include a deluxe disk wallet to take 30 5.25 inch disks and one to take 32 3.5 inch disks, both at £19.95. March is the projected launch date for the *Talents Adventure Creator* at £29.95, there is already one game written using this ability on the market, it is called *The Grail*. No dates have been given for the release of *Flight Night* (the Computer game) or *Flight Night* (the Adventure), *Ramjet Kid 3* (the Adventure) and a *Hard Drive Turbo* utility on the *Madness* label.



Guardian Moon



Guardian Moon



JUG

Other Releases

Activision are developing an ST version of 'Miles From Roger Rabbit', possible price £24.99. Level 9 say they will be releasing Spook on the ST at £19.95 at the end of February. New Sierra products coming our way include King's Quest IV: The Prince of Bowland in which the hero travels to a far distant town on a search for the one item which will save her father from certain death, Space Quest III: The Pirates of Penzance in which you get a third chance to become Roger Wilco, and penetrate the planet Penzance and then battle the ghosts faster than the Justice Chorus.



Gold Rush which is 3 complete adventures in one package. Real Ghostbusters from Activision should be out sometime in March and is based on the cartoon series on TV, price £19.99. Also in the pipeline from Activision is Indiana's Bartlethick role playing game and Millennium 2.2.

Fusion

The objective of Fusion is to collect 9 pieces of a bomb scattered over 13 alien levels and return them to the first level. You control an Assault Crusader in which you move around touching switches that allow you access to other levels and grids. Items found on various levels will give you increased fire power, a re-emergent ship's structure, shields, etc. Five types of enemy try to hinder your progress. Fusion features a detailed info panel with an encoded base ten alien numeric scoring system, ship's structural indicators, a shield's energy level bar and active switches and bomb display units. You can play normal or expert level. Fusion is an Electronic Arts release at £24.95.

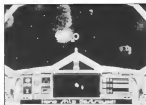


Timescanner

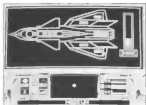
Electric Dreams have secured the



Player at the Month's Burger Fly Thru on Season Police Quest II: The Vengeance! in which the local piker has been murdered and your girlfriend has been kidnapped. Leisure Suit Larry II: Subtilleté 'Looking for Love in several wrong places' in which Larry wins a dream date on the 'Dating Connection' and a dream cruise on the 'Lover's Reef'.



rights to Timescanner, the Sega arcade action pinball game. The game consists of 4 levels, Volcano, Skyline, Ruins and Final. Levels are divided into two screens and the machine scrolls between the upper and the lower parts of that level. Each level is only accessible via a time tunnel on the previous level. Entry to the tunnel depends largely on your pinball skills. Special features include, realistic music and tilt, upto 3 balls on screen at once, upto 6 flippers, double length double height screens, special final bonus screen with a new 'breakout' type game. Timescanner is due for release in April at £19.95.



Skyfox II

Electronic Arts are to release Skyfox II in March priced at £24.95. It boasts a new plot, enhanced graphics, better sounds, faster action and a more realistic sensation of flying than its predecessor. In Skyfox II the Earth battle against the Xenomorph continues in the dark, deep space of the Cygnus constellation. Players take on the role of Federation Warfighters with the task of defending the interests of the Federation.

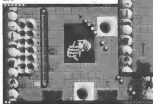
Skyfox II is a single player game with varying levels of difficulty and 10 possible battle situations. The Skyfox II aircraft

boasts advanced weaponry, neutron disruptors for destroying enemy fighters and asteroid fields, proton pulse bombs for destroying Xenomorph warships and anti matter mines effective in damaging enemy ships. Skyfox II also has shields and decoy devices.

Playing area encompasses an entire constellation and there are over 50 starbases at the player's disposal. The player gets the opportunity to travel faster than light through 'wormholes' which are by products of black holes. Warfighters who successfully complete a mission can move on to other missions, while failed missions have to be retaken.

Ballistic

A new game from Psygnosis is always a special event and they will be releasing just such a treat on February 12th. The game is called Ballistic and will retail for £19.95. Ballistic is a fast and furious ball game, in which you have to score more goals than your opponent. But its not as simple as that! Ballistic is combined with bonus features like magnets which whip the ball from under your nose, splitters that turn one ball into a multitude, bumpers that bounce you way off target, boosters will rack you in and blowers will spit you out. Sounds good, can't wait to see it?



ST Titles from Atlantis

Atlantis, better known for their budget 8 bit cassette games, are to release some budget titles for the ST range. Pothole Pete is a platform game set 2 miles down in an abandoned mine works, price £7.95. At £9.95 we have Alpine Games and ST Olympiad. Alpine Games covers five disciplines, Speed Skating, Bobsled, Ski Jump, Bobsled and Downhill. The sports in ST Olympiad are Weight Lifting, Running, Long Jump, Target Shooting, Discus and Swimming. Shutdown is another platform type game in which you roam about down the main computer before catastrophic strikes, price to be £14.95.

Myth

Set in ancient Greece you play a young God and you are about to be tested to see if you come up to the mark as a deity. You must find the famous ball of invisibility. During the course of your quest you'll meet the 9 headed Hydra, Chiron - centymen across the Sea, and many other 'myths'.

This unusual thing about Myth is that it is exclusively available only to members of the 'Official Secrets' club. Membership is £19.95 for a year and includes 6 issues of their magazine called 'Confidential', membership to 'Sports Review' which has some pretty special prizes for software, a copy of Level 9's Games

Ranger (or a surprise alternative) and a club magazine. For more info write to Official Secrets, P.O. Box 847, Harlow, CM21 9HH.



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AWANDERING

A regular adventure column by P.B.

Get Lost!

Welcome to the second in this series of adventure entries. I'd like to just remind you that this series of articles is intended to help YOU, the wanderer, as you explore, stroll or visit all of your favourite adventure locations. Of course, the biggest problem you might find is that you will get stuck on some conundrum that you just can't seem to find your way out of. Well, I'd like to help, but unfortunately I just don't have the time to play every adventure right through to the end. So, let me ask you again, if you have finished an adventure and you're feeling particularly proud, then please either write in with a clearly detailed hint sheet, or list of tips. All hints or tips acknowledged either in your own name or in your advertising pseudonym O.K.!

Now then, what I'd like to write about in this issue is the topographical subject of mapping. There's no doubt that for most adventures a map is essential, as otherwise you'll find yourself going around in circles. I won't deny that I prefer the type of adventure where mapping out is quite straightforward. That is, if you retain a game and follow the same path that you took before you will find the same objects, every time. I like this because most adventures have enough problems in them anyway without random redistribution of the goodies adding to the frustration level! This feature also helps when the game is subdivided into different levels, as with Lords of Time, from Level 9: What it means is that you can finish a level, and then visit it you have already saved your present position, you can go back and test out different routes and theories to see if they are all Hypotheses over the one that you took previously. It can be most satisfying to solve a thorny little problem and then go through the whole sequence again at high speed!

Figure 1 shows a simple way of mapping a North, East, South, West layout. As you can see, each location is represented by a four sided square, and each link is shown as a direction arrow. The link between 1 and 2 is a 2 way link, that is, you can move either way. The link between 2 and 3 is a one way link, that is, you can only move from 2 to 3, so make sure you've properly explored rooms 1 and 2 before moving to

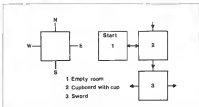


Figure 1. Mapping rooms.

Separate from the mapped locations is the list of room numbers and contents. This list can also be useful for mapping actions to be taken on entry.

Figure 2 shows an example of an eight compass point mapping system, again this requires directly linked connections. As you can see the location has paths moving from all compass points except S and W. Also included is a squiggly line located in a circle in the centre of the octagon. This shows that it is possible to move up and down from the location, possibly to a new level.

These types of mapping are perfectly O.K. especially, if like me, you find your adventures would begin to take shape as a landscape in your imagination. The problems begin when you get to the obligatory maze (ANOTHER maze? yes, how boring!) Well, most of the time they

lead to somewhere worth getting to, so take a tight grip on your mouse, sharpen your biro, get your paper, scissors and glue stick ready (yes, ALWAYS) and up going off the edge of the paper! and off you go. Ah, hang on. Below you set off all every available pocket, rucksack, bag, canteen, toolkit, wheelbarrow and container lorry with every artifact, no matter how disgusting, that you can find. Then, when you get to a new location, drop something on the floor. Make a note of where you dropped it, and then move on. By moving backwards and forwards you can check that there are no 'matter transporters' to save the face of a poor plot writer, and gradually expand your map, missing none of the paths you'd like to follow, as one of them will lead next. There is a difficulty here, though. For instance, Lord Pendelshop the Cool strides mightily along the forest path, huge thigh muscles rippling, loudly warning a 50 kilo battle axe. With confidence he marches into the sand dunes, stopping by a low tufted hillock to confidently drop the muscled body of a wing as a marker. The dialogue goes as follows:

DROP WARE!

YOU ARE BESIDE A LOW TUFTED HILLOCK IN THE SAND DUNES. THE BODY OF A WING IS HERE. THE SEA BREEZE: DRIFTS SAND OVER IT.

LOOK



Figure 2. Eight point compass.

YOU ARE BESIDE A LOW TUFTED
HILLOCK IN THE SAND DUNES

DIG

THERE IS THE BODY OF A NAUO
BURIED HERE

If you ever get into one of these
rooms, don't panic! The clues in the
location descriptions. For example:

YOU ARE ON A LOW TUFTED
HILLOCK.

YOU ARE BESIDE A LOW TUFTED
SAND HILLOCK.

YOU ARE ON A LOW TUFTED
HILLOCK WITH THE INSECT IN
YOUR FACE

Note these are all different locations.
Just make a note of them. And if your
mouse doesn't have any clues at all go out
and buy a better game!

There are other tips which it's worth
remembering. First is that in most
locations you can follow one wall only,
which is quite good in dark dungeons.
Also, once you've saved a position, have
an extra look around for anything you
might have missed.

For some adventures, though, the
type of mapping I've described is
unsuitable. These are the ones where
moving from room to room is not always
logical, connection rules. Figure 3 shows
how to cope with this. As long as the
connections remain constant you're
straight. As you can see this would be a
nightmare to map in any other way. In
each room description there is the room
title, a brief description of what you
might find in there, and a list of compass
points, usually in the order that you tried
them, and where they lead to.

Compass are also VERY useful, so
if you should find one, keep it nice and
safe.

Into the Dungeon

Right, enough of map making. Just
lately I've been getting stuck into what is
probably THE (graphic) adventure movie
at the moment. Yes, it's *Dungeon Master*
and poor PB has bagged eyes from
playing it. A few hints for those of you
just starting out coming up. First, ignore
any signs on boxes which say **COLOR
MONITOR REQUIRED**. To me a colour
monitor is a colour monitor, not a
television. But apparently some software
producers are labouring under the
misconception that a colour title is a
colour monitor.

Anyway, the solid 3D graphics,
colourful huge moving sprites, enormous
size of levels and general almost cinema
like pictorial quality of the game are so
impressive that I can't help but wonder
what the future will hold for the ST. It
can only be good!



Figure 3. A different way of mapping.

After playing for a while you may find
that your mouse becomes very jerky and
irregular in movement. Do not despair!
What has happened is that a layer of
oil from the skin of your hand has
been rubbed off onto the mouse mat, and
from there to the control rollers, which
pick up the movement from the
mouseball. The way to clean the
mouse, and restore the smooth rolling
quality is as follows:



Go to your local chemist and smile
nicely at the pharmacist. Ask him if you
may have 50 millilitres of **ISOPROPYL
ALCOHOL**. This is very pure alcohol,
as used in medicines. If you are under
18 years old it's probably best if you get
someone older to ask. In general it costs
about 50 to 70p for this small quantity,
but it is also useful for tape recorder
heads etc.

Turn your mouse over and gently
unpick the ball retaining plate and drop
out the ball. Moisten a cotton bud in the
alcohol (you DO get your cotton buds
at the same time as the isopropyl, don't
you?) and examine the three chrome
rollers. On each of them you will see
what appears to be a dark layer of rough
metal. This is the orange you have to
remove. Rub gently with the cotton bud,
changing the bud as the bud becomes
dirty. When the rollers are nice and shiny
allow the mouse to air for a few minutes.
Pop the ball back in, gently replace the
plate and voila! A smooth running
mouse!

Back to the tips. Find the compass
before the mids. Make sure no one is
carrying too much as Time is all the
Essence, and also in there, don't despair
you may not be able to cross the pit but
something you're carrying can at the
right time!

Get into leather and carry the right
torso. Don't just ignore the mirror of
Dawn, be things reflect in it but prepare a
few UNFOLDS in it! And while you
sleep, why not save that torch?

Well, that's all for now, bye, PB.

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AMODEM

From James Bontable

This AmodeM communications disk. Contains AMODEM48 and AMODEM302, as well as details on split baud rates on the B50 turbo and if available (be done!).
Runs in 48K mem. Disk only.
Requires 1 side of a disk.

CUTE LABELS

Use this utility to make cute little labels for disks, records, etc. Other programs on here allow you to flip and mirror Paintshop icons to print on the labels and also to create new icons. Two other utilities allow you to convert Paintshop Screen Magic pictures from

Paintshop format to Atari DOS format. The other side of the disk contains 50 icons for use with the icon builder and also Scatloged, a syntax and mouse handler.
Runs in 48K mem. Disk only.
Requires 2 sides of a disk.

EXPRESS

The excellent Express telecomms package for use with Atari 1600 and 2600C modems when used with the B50. Also on this disk are versions for use with HPP modems and the 30212 modem.

Runs in 48K mem. Disk only.
Requires 2 sides of a disk.

JOYTYPE

by John Page USA

Use a joystick to type in program listings. Ideal for the disabled.
Runs in 48K mem. Disk only.
Requires 1 side of disk.
XL/XE only.

PAINTSHOP DIRECTORY SORTER

by Linda Tinkler Winal

This program will print out on screen and/or Epson compatible printer an alphabetical list

of up to 128 icons on a Paintshop DATA disk. It will not work on the icons on the original Paintshop disk.

Runs in 48K mem. Disk only.

Requires 1 side of a disk.
XL/XE only. Turbo Basic program.

MICRO MAP

by Gary Hooten USA

This program will allow you to create a graphic miniature of your own with writing, screens and landscapes.
Runs in 48K mem. Disk only.
Requires 1 side of a disk.

CHR STRINGS & ATASCB CODES

by Norman Williamson Britain

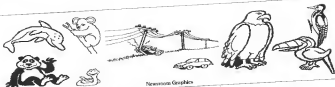
Fully graphical and textual programs to help you master the techniques of those Homographic symbols which appear in magazine listings (including ours).
Runs in 48K mem. Disk only.

DETOURNEER TURBO

Turbo Basic version of Ron Levy's Detourneer program.

Runs in 48K mem. Disk only.
Requires Turbo Basic.

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Newsroom Graphics

Newsroom

Review by R. Laster

Newsroom is an easy-to-use page design application that puts the power of the press into your hands. You can quickly and easily create personalized newsletters, flyers and other short publications. This software is all you need for setting articles, adding pictures and designing the overall page layout.

Newsroom requires an Atari XL/XE with at least 64K memory, an Atari 1050 disk drive (or a compatible drive that reads enhanced disks) and a graphics-capable dot matrix printer. Most likely you will need a printer interface such as the ICD P-R Connector or the Atari 850. The only direct connect printer supported is the Atari XM6000. However, the 64-printer drivers that are included in the Newsroom should cover almost any of the standard printers.

Newsroom also requires Atari Basic. Do not use the OPTION button. The disks are in enhanced density (DOS 2.5) and the data file disks must be formatted by the Newsroom. The manual is a clear and well-written 98-page book with screen shots and many illustrations. The book provides you with step-by-step instructions in preparing a sample of a 1-page newsletter. The Newsroom program comes with 650 named clip art illustrations. There are 8 more disks available giving you an additional 2000

generic, business and sports/recreational clip art illustrations.

The Newsroom printings are designed one page at a time. The page is made of individual panels that can each contain pictures and/or text. Standard 8 1/2 x 11 inch paper can hold 8 panels or 6 panels with a double-panel banner across the top of the page. The larger (14 inch) legal paper adds 2 extra panels to the bottom of the page. Each panel and banner is stored on disk as a separate data file. An additional page layout file controls panel positioning. All the files for a given page should be kept on the same data disk.

The Newsroom main menu has 5 different departments: Photo Lab, Copy Desk, Headers, Layout and Print. The usual way to create a page is to create pictures in the Photo Lab, then add text for each panel in Copy Desk. This is because of course composition is the Headers section. The overall page format is done in Layout and then print your work of art in the Print. The program uses commands that are selected by using either a joystick or the cursor keys to pick from the menu of icons. There is an Undo command called "OOFF" that can be called from the Photo Lab, Headers or the Copy Desk to cancel your last entry. Artwork can be included in your work of art as "photos" created in the Photo Lab by combining the clip art, text and graphics enhancements. You can use up to 30 clip art illustrations in a single

photo, but only Newsroom Clip Art can be used. There is also now available a program called "The Converter" which allows you to transfer other sources of graphics such as Print Shop icons or MicroPaint pictures to be used with the Newsroom.

The Graphics Toolbox provides shapes, fill patterns, lines, strokes and rectangles. Freehand drawing and erasing are supported along with 10 pre-defined pen shapes and 18 fill patterns. The Zoom magnifies small areas of the panel on a pixel by pixel scale for fine tuning. After the artwork is done you are ready to take the photo. A set of options appear which you can position to define the area of the picture to be included in the photo. The photo is then saved to disk to be used at the Copy Desk.

Text is added in the Copy Desk, one panel at a time. Three large fonts are available for the headlines and 2 normal fonts for the text itself. The normal fonts are scaled down versions of the large fonts. No space is provided for creating new fonts.

The panel can contain a photo, text or both. One large and one normal font can be used in a panel, but not mixed on a single line. First the photo is positioned within the panel. As the text is added, it flows across and down from the upper left, automatically wrapping around the photo. You can reposition the photo any time and the text will adapt to the new



Newsroom Graphics

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set-up. When editing text, you can delete, copy or move a text block, delete characters or delete all. Panels can be saved to disk and recalled for later editing if required.

Buttons are put together similarly to a single panel. Art can be added from clip art and/or the graphics toolbox. Once the banner is done, it can be saved and used over and over again. After the panels are finished, the final page is set in the Layout department. You then specify either the standard or legal size page, format with or without a banner, select the panels and their positions on the newsletter or other publication. This is then saved to a disk as a separate page layout file. Finally the printing is done in the Press department. The first time you must select the printer driver required.

When this is done, select the Print Page option to get a print out of your masterpiece. This can take 7 or 8 minutes for a typical page and only one page can be printed at a time. You can also print individual banners, panels or photos if required.

This is a very good program and very user friendly and a joy to use. The Clip Art pictures are also very well done. This is an A 1 class program for the 8 bit and worth every bit of the price. There are now quite a few new programs being released for the Atari 8 bit in the U.S.A. and Canada. I hope to do some reviews on these in the future.

If you would like more information on this program or on the Converter

program, please feel free to write to the following companies for their brochures and prices. We must try and keep programs of this quality on the market and we can only do this if we support the programmers and the retailers. The addresses are as follows:

For the Newsroom
Springboard Software Inc. 7508
Creskridge Circle, Minneapolis, MN
55405 U.S.A.

For the Converter
No Fills Software, 803 East 23rd Street,
Rearney, NE 68647, U.S.A.



Newsroom Graphics

Dawn Raider & Periscope Up

From Atlantis Software
Cassettes, £1.99 each
Reviewed by Brian Smith

Unless my senses are deceiving me, Atlantis are at present the most prolific producers of new games for the 8 bit Atari and for their efforts in the direction they should be praised. Unfortunately, when these two games were loaded I was overcome by a distinct feeling of 'disbelief'. If I were party to the Atlantis planning meetings I think I would suggest that they try to come up with a new game that was innovative and addictive, so enjoyable and so good that it might lead on to sequels in the *Boulderlands*, *Ultima* and *Mercenary* moulds as a basis for ensuring future sales and success. Perhaps this is asking too much of a software house producing budget priced games but I am sure the strategy would pay off in the long term rather than releasing games that are derivatives of many earlier games. I remember reading reviews of the first *Mercenary* game a couple of years ago, one particular review stated that the

lowest time recorded at that point for completing the escape was 37 hours - this set a challenge which I imagine sent many games players to their software supplier to buy the game, and when the game was actually played created a ready market for a sequel.



You may feel that I am digressing from the actual point of reviewing these two games. You may have a point, but my comments are made in the hope that we might get more of what the users want from the games producers in the 8 bit Atari range and software houses would do well to remember that future sales are based on their earlier releases. Admittedly at under two pounds each these games cannot really be poor value, in fact *Dawn Raider* gave me hours of entertainment, unfortunately not in playing the game but trying to decide where I had played it before. These two games are so similar to earlier releases I wonder exactly where they will find their markets, presumably old hands will already have very similar games in their collections, and I don't imagine that there are too many new Atari 8 bit users.

Dawn Raider

Loading time 6 minutes
Joystick only

Immediately I started playing this game I was convinced that I had played it before but on checking the credits I found that it was programmed by one G. Strong copyright 1988 so easily I couldn't have played it previously. Having said that this game is very, very similar to

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Amstritz 2 released by English Software in 1993, the game concept is virtually the same although the graphics are rather more sophisticated, essentially, however, the game is the same. You have to navigate your craft through continuously horizontally scrolling screens avoiding rockets, gunfire, etc., collecting fuel and ammunition on your way to reach your objective which is to destroy the nuclear armed fleet of rockets which are about to destroy the world's major cities.

If you have *Amstritz 2* in your collection I know not whether there was an *Amstritz 1*; you might probably give this game a miss. However, it is still unforgivably addictive and good value at £1.99.

Periscope Up

Loading time 9 minutes.
Joystick only

Again you find yourself wandering through screens, this time underwater and the scrolling is dependent upon your movements. The game does have a variation on the theme as you start off in a submarine and rather than remain as the one vehicle you then send your remote controlled robot out to collect keys to open doors to sealed chambers and collect fuel and the numbers that you need for the combination lock for the final solution. However it remains a fairly simple and straightforward game.

It is quite addictive if only to get to the end, but after that probably will not hold a great deal of lasting appeal. Once you have completed the game you will probably only return to it very occasionally, if at all.

I commend *Amstritz* for their support of the *Amstritz* but not wonder whether



they may perhaps be looking in positive direction and would like to see a rather more consistent and devoted attitude towards quality. Of their recent releases I found *Pro Golf* very enjoyable, *Cops* and *Robbers* rather suspect in content and having played the game a number of times subsequent to writing the review (last issue) find the PING collision set up decidedly hostile and annoying.

Amstritz seem to be attempting to please all of the people all of the time, which they will never succeed in doing by aiming their games at the middle of the road, which is perhaps the most hazardous place to be. I certainly feel that establishing a reputation for

producing good, innovative games should be their priority as this would generate future dividends, and moreover they must comprehensively manage games that they release to ensure that they are bug free before they hit the market place. I haven't yet come across any bugs in these two games but I did in earlier releases such as *Spooky Castle* and *Daylight Robbery*.

After seeing the crowds at *Amstritz Palace* last November I feel that there is a real ready market for good, new games for the *8 bit Amstritz* and I hope that *Amstritz* will get into the thick of this market as quickly as they possibly can, but quality and new ideas are the order of the day rather than thinly disguised reworkings of old games, their enthusiasm for getting games into the market place should be tempered with a desire to achieve a quality that will allow potential buyers to go out and buy new releases without worrying about whether the game will be of poor quality, a reworking of someone else's earlier release, or laden with bugs that make it unenjoyable. Those comments are obviously not aimed solely at *Amstritz* as other software houses have released bug laden games or games that were pretty hostile towards the player and I hope that *Amstritz* go on to release many more games for the *8 bit Amstritz*, I also hope that any readers who write games will contact *Amstritz* in the hope that *Amstritz* will consider publishing them. There are a lot of people out there who write games of a high standard that often find their way into the public domain that I am sure *Amstritz* would like to hear from with a view to publishing on the commercial sector.

Turbo-816

DataQue Software have announced a powerful new upgrade which has been designed by Ron Shaw and Chuck Swenson. This upgrade will be available in two forms. There will be a replacement CPU board for the original 400-500 computer system and a plug-in module for the XL/XE series. In either case there is usually no need for any modifications to the existing hardware. The only exception is with XL/XE systems which have their CPU soldered in place, which will require the removal of the existing CPU and the addition of a standard 40 pin IC socket. Also included is a new Turbo-C8.

Turbo 816 will not only increase the potential speed of the computer, but also loads the 64K memory buffer of the existing system. Not with the enhanced page memory, but with a fully linear divided address space of up to 16

megabytes. Instructions have already put *Turbo 816* into a performance range above many "PCs". Special memory boards will be available to take advantage of the new extended addressing range.

While adding all this power and expanded addressing it is claimed compatibility with most currently available software has been maintained. Just think what an even faster version of *Star Raiders* would be like!

Turbo C8 is a replacement operating system which utilizes the *Turbo 816* 16 bit processor to its fullest potential. Increased speed is the most obvious benefit. But hidden in its code is an advanced new floating point library that will speed up even the old *Amstritz Basic* to new levels of performance. On most systems it will be just a matter of replacing the existing ROMs with the *Turbo-C8*.

Further developments already planned include, a real-time multi-tasking operating system kernel, a new assembler utility

debugger package, a new Basic, a "C" development package, *Turbo-GOS* which is a graphics based operating system, and a development kit for new applications.

For more information contact:

DataQue Software, Dept. T-816, P.O. Box 134, Ontario, ON M8B2

The Page Marshal System

From Veler Software
For 800XL/800XE/1300XE
with Disk Drive
Also requires
800 interface (or equivalent)
Epson compatible Dot Matrix Printer
Joystick

Page Marshal consists of a suite of programs which together form a very useful, user friendly, "text with graphics" page processing system. Character

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graphics are used throughout, resulting in ease of use, instant redraw and guaranteed 'clean' images. The system was originally developed as an in-house structured programming chart drafting tool, but there are many other schematic-type tasks which the system can easily tackle, for example, it is an ideal system for producing electronic circuits, business forms, statistics charts, graphs, hierarchical (tree) structure charts, musical scores, advertisements, news sheets or indeed any type of document that can be built up from a range of differently shaped character elements. A different character set (font) can be used on every line, allowing documents of incredible complexity to be created. A fast, on-resident printer driver is provided, eliminating the need for inefficient disk

32 characters wide by 36 characters tall).

The only limitation on the number of macros that can be stored is the limit of physical space in the library. Page Marshal comes equipped with macro libraries for each discipline. The library area is automatically saved/loaded to/from disk along with each page. Each page's library can be customised to suit a particular font and application, and the Page Marshal utilities program allows any other's library file to be changed for any other library. The window can be panned horizontally, vertically or diagonally to any part of the library or page via the joystick. This interaction always occurs in real time, even during the simultaneous movement of macro blocks. The print out menu allows the user to select up to

consecutive nonadjacent numbering spread over any number of pages! It is also a simple matter to mix automatic numbering with manual numbering. Also included are facilities for printed circuit board design which completes not only layouts for copper layer, component identity and solder resist, but also an ingenious routine called 'SP-CONVERT' which enables the designer to create an unlimited number of layers with each additional layer capitalising on the same pad positions (data).

For the technically minded, Page Marshal makes use of display list interrupts, vertical blank processing, player-midfield graphics and special sound effects. Naturally, much of the programming simply had to be written in assembly language, but to allow



DECISION



PROCESS



TERMINATOR



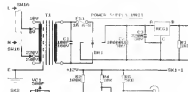
OFFLINE
STORAGE



AUXILIARY
OPERATION



SORT



$$V = \frac{-R_1 + \sqrt{R_1^2 - 4R_2R_3}}{2R_2}$$

$$f_{max} = \frac{1}{2\pi\sqrt{L_1C_1}}$$

$$J_1 = J_1 - 1$$

$$J_2 = -1$$

$$J_3 = -2$$

$$J_4 = 1$$

$$\int_0^{\infty} \frac{1}{x} dx = \lim_{n \rightarrow \infty} \sum_{k=1}^n \frac{1}{k}$$

swapping.

The screen display exactly mimics the hard copy. In other words, what you see is what you get! A comprehensive range of custom font files is provided to enable the user to create any of the types of document already described, as well as opening up specialist applications such as printed circuit board design. The program stores an entire 80 columns by 80 row 'page' (640 pixels by 640 pixels) in RAM, and provides a fully mobile 40 columns by 20 row screen 'window' onto this page. A so-resident 'library' (48 columns by 80 rows) is an integral part of the file of every page, and enables the user to capitalise on previously designed and stored 'macros' (ie macro consists of any designated block of characters up to

2000 copies to be run off continuously (no disk swapping necessary). There is a pause/pending control which never reports formatting.

Separate menu windows are provided for loading and saving document files, and for the separate loading of forms and text files. Any word processor, such as *AcadWrite*, that can produce DOS 2.5 record format files may be used to prepare text files for this system. However, *Page Marshal* can also be used as a text processor in its own right, it has a dedicated 'types' mode for text processing.

The autonumber facility (for circuit diagrams and the like) allows automatic renumbering of up to 999 components of each of up to 64 component types with

component programming to fine-tune the program to their own requirements, it is possible to modify or add to the data statements of those parts of the programs which have been written in Turbo Basic.

The total package contains: *Page Marshal* main program (Issue 1.01), the utilities program (Issue 1.00), fonts set 1, library set 1, user manuals, customer support and discounts on future upgrades.

Page Marshal is available from Veler Software, 125 Vale Road, Portlough, Sussex, BN4 1AE. The price is an unbelievably low £25.64 (which includes post, packing and insurance)

CRACKING THE CODE

Part Seventeen by Keith Mayhew

In this part we will be looking at the facilities available for accessing the disk drive. We will start with the low-level access which treats the disk on a sector basis. After this, we will look at the file structure imposed on the sectors via the disk file handler 'D'.

Low-level Disk Access

The only built-in routines provided for accessing the disk drive are read a sector, write a sector, and format. Note that there are no routines built into the operating system to access files on the disk - these are provided by DOS which is loaded from a disk at power up.

These sector-based routines are related to the Disk Handler. It is not, however, a CIO device handler and cannot be accessed directly from the CIO. Refer to Figure one in Part 15 of this series (Issue 15) to see where the disk handler is situated in the operating system hierarchy.

The disk handler is called via a JSR to its own vector 'DISHW' at \$458 hex. The variables used by the handler, and their locations, in hex, are as follows:

0300 DUNIT Disk drive number
0302 DCOMND Command byte
0303 DSTATS Status byte
0304 DRUFLO Buffer address low
0305 DRUFHI Buffer address high
0306 DBYTLO Number of bytes low
0307 DBYTHI Number of bytes high
0308 DAUX1 Sector number low
0309 DAUX2 Sector number high

The disk handler uses SID, the Serial Input/Output utility, to pass the required command on to the disk drive via the 15-pin serial interface. In fact, the above variables belong to SID's Device Control Block (DCB) which is used when addressing any device on the serial bus not just the disk drive.

When the disk drive receives the command its processor decodes it and uses its WD771 floppy disk controller chip to actually perform the operation.

Sector Read Command

Reading a single sector of a disk is achieved by the following: set 'DUNIT' to the number of the disk drive you wish to access (drives are numbered from one onward), set 'DCOMND' to \$2 hex: the 'get sector' command, set the buffer

address, 'DRUFLO' & 'DRUFHI', to point to a 128 byte buffer; lastly, set 'DAUX1' & 'DAUX2' to the sector number you want read (sectors are numbered from 1 onward) and JSR to 'DISHW'.

On return, the status byte, 'DSTATS', will be set to 1 if the read was successful and the sector's contents will be in your buffer. If the read failed 'DSTATS' will contain an error code between \$A and \$D hex, excepting \$C hex: refer to Part 14 of this series in issue 18 for their meanings.

Sector Write Command

To write a single sector on to a disk the variables are set up as for reading except 'DCOMND' is set to \$7 hex, the 'write sector' command. After a successful call to the disk handler the buffer's contents will have been written to the specified sector and 1 will be in 'DSTATS'.

The above command writes a sector with verify, i.e. the disk drive is made the sector and compares it against what should have been written. There is an alternative write command, \$8 hex, which writes without this verification, thus speeding up the writing process. This is obviously less safe as you are not guaranteed that the data was written correctly; it only proves that the disk was readable, i.e. the drive could find the appropriate sector.

Unfortunately, the disk handler in this original operating system does not recognise the command to write without verify. To achieve the operation you have to access SID directly! This 'bug' may have been fixed on the XL and XE machines.

Format Disk Command

Before a new disk can be used to write information to, a 'format' has to be written on to the disk. The format for a standard single density drive consists of 93 tracks, each with 18 sectors of 128 bytes each. Special 'headers' and 'trailers' are written around each sector. These contain information for the disk controller's own use such as sector number, track number and a 'CRC' code which is used to validate data read from that sector. As you can see, there is more on a disk than just what you can put there! Fortunately all these timeconsuming details are hidden from us when we read and write sectors.

To write a new format on to a floppy disk, the disk handler variables are set up to specify the disk drive number, a pointer to a 128 byte buffer and a command byte value of \$1 hex. The handler does not return until the disk drive has completed the operation. When finished, a status value is returned. If the format was successful, a count of the number of 'bad' sectors which could not be formatted is returned in 'DBYTLO' and 'DBYTHI'. Normally this count is zero, however, if errors did occur then a list of the sector numbers which could not be formatted are returned in the buffer, in low high format, terminated with a pair of FF hex. This allows for a maximum of 63 bad sectors, however, if a disk has that many errors it really ought to be thrown away!

All disk handler commands return further status information in a four byte block called DSTAT starting at \$2EA hex. The most useful information here is just bit 3 of the first byte which, if set, indicates that a write or format failed due to the disk being write protected. Of interest to some might be the second byte which holds the disk status byte of the disk drive's floppy controller chip, for information on this you will have to find a data sheet on the WD1771.

File-level Access

Although sector access is very flexible it is not a very convenient method of storing and retrieving general information as it requires us to break our information down into small blocks and remember on what sector numbers it was all stored.

File level access is provided by a File Management System (FMS) which maintains a directory of all the files stored on a disk. The FMS is a part of DOS which is loaded at power up and places an entry in the CIO's handler table for the device 'D'. All the standard CIO commands for opening, closing, reading and writing are supported by the FMS plus several other commands.

OPEN Command

The OPEN command accepts a file name and an optional drive number. The file name is in the same format as you use from DOS and can contain 'wildcards', i.e. '*' which matches any number of characters and '?' which matches any single letter. The FMS will

Age Group	Percentage of Respondents
18-24	85
25-34	75
35-44	70
45-54	65
55-64	60
65-74	55
75+	45

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```

4620 ASC TEMP
4630 ASC 0 ;plot offset line left.
4635 ASC 017000 ;plot offset for right digit.
4638 STA COLS ;draw column.
4640 SPC SPAN
4650 AASC(1) LA ;plot 1 position.
4655 SCL ;plot offset line left.
4670 ASC 007
4680 STA COLS ;draw column.
4690 SPC(1) SPC ;draw one right.
4700 SPC SPAN ;drawable space.
4710 STA COLS ;draw cursor left to enter...
4720 SPC SPAN
4730 SPC SPAN ;cursor now displayed.
4740 SPC
4750 ;display buffer to screen.
4760 DISPLAY LA 0 ;Start at byte 0.
4770 STA CURPTR
4780 SPAN(1) SPC SPAN(1) ;display 11.
4790 STA LA ;CURPTR ;plot byte.
4800 SCL
4810 ASC 0
4820 STA CURPTR
4830 SPC SPAN
4840 SPC SPAN
4850 SPC SPAN
4860 SPC
4870 ;display current byte of buffer
4875 SPAN(1) LA CURPTR
4880 SPC SPAN ;plot line number.
4890 STA 0
4900 STA 0
4910 STA 0
4920 SCL
4930 ASC 00
4940 STA SPAN
4950 STA LA ;CURPTR
4960 SPC SPAN
4970 SPC SPAN
4980 SCL
4990 ASC SPAN ;draw three...
5000 ASC SPAN
5010 ASC 0
5020 STA COLS
5030 SPC CURPTR ;plot byte.
5040 STA SPAN(1)
5050 SPC SPAN ;draw it to box.
5060 STA CURPTR ;plot column for character.
5070 SPC SPAN
5080 SCL
5090 ASC 007 ;offset across screen.
5100 STA SPAN
5110 SPC CURPTR ;plot byte again.
5120 STA SPAN(1)
5130 STA SPAN
5140 SPC SPAN ;plot character.
5150 SPC SPAN
5160 ;insert character to hex digit.
5170 SPAN(1) SPC 4 0
5180 SPC SPAN(1) ;plot value (hexadecimal).
5190 SPC SPAN ;4 = character after 7
5200 SPC SPAN SPAN(1) ;plot a digit.
5210 SPC SPC
5220 SPC 4 0 ;convert to number.
5230 SPC SPAN
5240 SPAN(1) SPC 0 0 ;upper case letter?
5250 SPC SPAN(1)
5260 SPC 0 0
5270 SPC SPAN(1)
5280 SPC SPC
5290 SPC SPC
5300 SPC SPC
5310 SPAN(1) SPC 0 0 ;lower case letter?
5320 SPC SPAN(1)
5330 SPC 0 0
5340 SPC SPAN(1)

```

```

5350 SPC
5360 SPC
5370 SPC
5380 SPAN(1) SPC SPAN
5390 SPC SPAN
5400 SPC 100 0 ;convert to number.
5410 SPC SPAN
5420 SPC SPAN
5430 SPC 100 0
5440 SPC 100 0
5450 SPC 100 0
5460 SPC SPAN(1) ;plot high nibble.
5470 SPC SPAN
5480 SPC SPAN
5490 SPC SPAN
5500 SPC
5510 SPC SPAN(1) ;plot low nibble.
5520 SPC SPAN
5530 SPC SPAN(1) ;plot a single hex digit.
5540 SPC SPAN(1) SPC SPAN ;is digit zero or lower?
5550 SPC SPAN(1) SPC SPAN(1) ;No.
5560 SPC SCL
5570 SPC 4 0 ;form into SPAN(1).
5580 SPC SPAN(1) SPAN(1)
5590 SPC SPAN
5600 SPC SPAN
5610 SPC SPAN(1) SPC SPAN(1)
5620 SPC SPAN(1) SPC SPAN(1)
5630 SPC SPAN(1) SPC SPAN(1)
5640 SPC SPAN(1) SPC SPAN(1)
5650 SPC SPAN(1) SPC SPAN(1)
5660 SPC SPAN(1) SPC SPAN(1)
5670 SPC SPAN(1) SPC SPAN(1)
5680 SPC SPAN(1) SPC SPAN(1)
5690 SPC SPAN(1) SPC SPAN(1)
5700 SPC SPAN(1) SPC SPAN(1)
5710 SPC SPAN(1) SPC SPAN(1)
5720 SPC SPAN(1) SPC SPAN(1)
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5780 SPC SPAN(1) SPC SPAN(1)
5790 SPC SPAN(1) SPC SPAN(1)
5800 SPC SPAN(1) SPC SPAN(1)
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5890 SPC SPAN(1) SPC SPAN(1)
5900 SPC SPAN(1) SPC SPAN(1)
5910 SPC SPAN(1) SPC SPAN(1)
5920 SPC SPAN(1) SPC SPAN(1)
5930 SPC SPAN(1) SPC SPAN(1)
5940 SPC SPAN(1) SPC SPAN(1)
5950 SPC SPAN(1) SPC SPAN(1)
5960 SPC SPAN(1) SPC SPAN(1)
5970 SPC SPAN(1) SPC SPAN(1)
5980 SPC SPAN(1) SPC SPAN(1)
5990 SPC SPAN(1) SPC SPAN(1)

```


[illegible]

open the first file it finds in the directory which matches the wildcards, if they are present

Onix files can be opened for read-only or write-only. If a file already exists, when opened for write only then the file will first of all be set into length, losing any previous information. If both read and write is specified then the file is not set to zero length and either reading or writing can be done, in any order, except that writing cannot extend beyond the end of the file's existing length; this is referred to as "append" mode.

To extend an existing file, the append flag, bit 0 of `AUX1`, must be set along with the write flag, bit 3, i.e. 9 in `AUX1`. Any writing operations will add data to the end of the file without affecting what is already stored in the file.

Note that data written to a file can be lost if a close statement is not issued when the file is finished with.

Access to the directory information, as displayed by DOS, is also provided by the open command "WLDI" has to be set to 6, i.e. a read with 1 also set. The directory can then be read using normal get record commands, each one returning one line of the directory containing the file entry and a series

count in ASCII text ready to be displayed. The last read before end of file will return a line showing the number of sectors available on the disk. These lines, if directly sent to the editor device, will provide a directory-looking exactly the same as that obtained by DOS.

The file name used when opening the directory governs which files will be returned on subsequent read operations. 'D = *' will match all files and thus allows the whole directory to be deployed. However, if you only wish to display say BAS files, then 'D = BAS*' is required.

DELETE Command

Files can be deleted from a disk by specifying a CIO command byte of 21 hex. The file name determines which files are deleted and can contain wildcards, e.g. "DLE *" will delete all files from the directory.

RENAME Command

Any name in a directory can be named by specifying a CIO command byte of 20 hex. The file name specification was simply consists of two

[illegible]

names, separated by a comma. For example 'D:FILE1.TXT,FILE2.DAT' will rename 'FILE1.TXT' to 'FILE2.DAT'. Note that renaming does not affect the contents of a file in any way. Several files can be renamed at once by using wildcards in both file names, for example 'D:*.BAK*.TXT' will change the extension of all *.BAK files to *.TXT.

LOCK and UNLOCK Command

Files may be 'locked' so that attempts to write to them via the FMS will fail. i.e. write, delete and rename commands. Note that a locked file is not protected physically, so a sector of the file can be written to directly by using the disk handler.

The lock command requires a CIO command byte of 23 hex and a filename which can contain wildcards. In which case all matching files will be locked. Note that locked files are shown in the directory listing by a preceding star. Unlocking files is done by specifying a CIO command byte of 24 hex and an appropriate filename.

11/20/2011

[illegible][illegible]

0001	00000000	000000000000000000000000
0002	00000000	000000000000000000000000
0003	00000000	000000000000000000000000
0004	00000000	000000000000000000000000
0005	00000000	000000000000000000000000
0006	00000000	000000000000000000000000
0007	00000000	000000000000000000000000
0008	00000000	000000000000000000000000
0009	00000000	000000000000000000000000
0010	00000000	000000000000000000000000
0011	00000000	000000000000000000000000
0012	00000000	000000000000000000000000
0013	00000000	000000000000000000000000
0014	00000000	000000000000000000000000
0015	00000000	000000000000000000000000
0016	00000000	000000000000000000000000
0017	00000000	000000000000000000000000
0018	00000000	000000000000000000000000
0019	00000000	000000000000000000000000
0020	00000000	000000000000000000000000
0021	00000000	000000000000000000000000
0022	00000000	000000000000000000000000
0023	00000000	000000000000000000000000
0024	00000000	000000000000000000000000
0025	00000000	000000000000000000000000
0026	00000000	000000000000000000000000
0027	00000000	000000000000000000000000
0028	00000000	000000000000000000000000
0029	00000000	000000000000000000000000
0030	00000000	000000000000000000000000
0031	00000000	000000000000000000000000
0032	00000000	000000000000000000000000
0033	00000000	000000000000000000000000
0034	00000000	000000000000000000000000
0035	00000000	000000000000000000000000
0036	00000000	000000000000000000000000
0037	00000000	000000000000000000000000
0038	00000000	000000000000000000000000
0039	00000000	000000000000000000000000
0040	00000000	000000000000000000000000

```

1020 DATA 403425425410000
1021 DATA 403425425410000
1022 DATA 403425425410000
1023 DATA 403425425410000
1024 DATA 403425425410000
1025 DATA 403425425410000
1026 DATA 403425425410000
1027 DATA 403425425410000
1028 DATA 403425425410000
1029 DATA 403425425410000
1030 DATA 403425425410000
1031 DATA 403425425410000
1032 DATA 403425425410000
1033 DATA 403425425410000
1034 DATA 403425425410000
1035 DATA 403425425410000
1036 DATA 403425425410000
1037 DATA 403425425410000
1038 DATA 403425425410000
1039 DATA 403425425410000
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1041 DATA 403425425410000
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1051 DATA 403425425410000
1052 DATA 403425425410000

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1053 DATA 403425425410000
1054 DATA 403425425410000
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1060 DATA 403425425410000
1061 DATA 403425425410000
1062 DATA 403425425410000
1063 DATA 403425425410000
1064 DATA 403425425410000
1065 DATA 403425425410000
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1075 DATA 403425425410000
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1077 DATA 403425425410000
1078 DATA 403425425410000
1079 DATA 403425425410000
1080 DATA 403425425410000
1081 DATA 403425425410000
1082 DATA 403425425410000
1083 DATA 403425425410000

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1084 DATA 403425425410000
1085 DATA 403425425410000
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1097 DATA 403425425410000
1098 DATA 403425425410000
1099 DATA 403425425410000
1100 DATA 403425425410000
1101 DATA 403425425410000
1102 DATA 403425425410000
1103 DATA 403425425410000
1104 DATA 403425425410000
1105 DATA 403425425410000
1106 DATA 403425425410000
1107 DATA 403425425410000
1108 DATA 403425425410000
1109 DATA 403425425410000
1110 DATA 403425425410000
1111 DATA 403425425410000
1112 DATA 403425425410000
1113 DATA 403425425410000
1114 DATA 403425425410000

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1115 DATA 403425425410000
1116 DATA 403425425410000
1117 DATA 403425425410000
1118 DATA 403425425410000
1119 DATA 403425425410000
1120 DATA 403425425410000
1121 DATA 403425425410000
1122 DATA 403425425410000
1123 DATA 403425425410000
1124 DATA 403425425410000
1125 DATA 403425425410000
1126 DATA 403425425410000
1127 DATA 403425425410000
1128 DATA 403425425410000
1129 DATA 403425425410000
1130 DATA 403425425410000
1131 DATA 403425425410000
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1143 DATA 403425425410000
1144 DATA 403425425410000

```

NOTE and POINT Command

The 'note' and 'point' commands are useful when accessing files 'randomly', i.e. in a non sequential manner. The note command can be issued at any time on a CIO KCB which is already open for access to a disk file. It requires a CIO command byte of 25 hex and no filename.

On return, it 'notes' the position of the NEXT byte to be read or written. 'ICANS' and 'ICANS' specify the sector number in low-high format and 'ICANS' contains a number between 0 and 126 specifying the position of the byte within the sector.

A 'point' command receives the same information as above. In 'ICANS' and 'ICANS' and 'ICANS' and 'point' the FMS of the specified byte in the file. Any further reads or writes will start at the specified place, regardless of where reading or writing was previously taking place. The CIO command byte for 'point' is 26 hex and doesn't take filename; it is restricted for use only on files which have been opened for 'append', i.e. read and write.

A typical use of note and point is as follows. When a file is being written a note is made before each item is written and the sector and byte offset are held in memory. When the file is closed and re-opened in append mode any item can

be directly accessed by issuing a point command on the relevant sector and byte offset for that item and a subsequent read will retrieve the item.

The information held in memory for random access to the file can be written to another file so that, when next used, the program can read in the random access information into memory and access the main file again without having to re-build all the information.

STATUS Command

The standard CIO status command, 0D hex, can be used with a filename specifier to determine if a file exists or if it is locked. If no file is found in the directory matching the specified name then an error code of AA hex is returned. If the file is locked, AT is returned as an error code.

FORMAT Command

A disk can be formatted via FMS using the CIO command byte FE hex and a filename consisting of just a drive number, e.g. 'D1'. This format operation is similar to that provided by the disk handler (but writes some information, such as an empty directory, to the sectors on the disk so that it can be used to hold FMS files).

A Sector Editor

Listing 1 is the assembly language for a simple sector editor. It uses the read and write sector commands of the disk handler and CIO to display the information on the screen via the editor. The sector is displayed in both hex and ASCII format and can be edited in either form. Listing 2 is a BASIC listing ready to type in and run. The instructions for use are given in the REM statements at the top of the listing.

With the sector editor you can read, edit and write any sector on a disk you like, but be careful not to use it on a disk containing valuable information, as you might lose it forever if you are not sure exactly what you are doing!

Next Time

Next time we will look at how files are stored on the sectors of a disk. In the meantime you might wish to find out for yourself with the sector editor.

Want to Catch Up?

A complete photocopy set of the 'Cracking the Code' series so far is available for just £2.50, so if you want to catch up on the early part of the series, send off for it today!

8-Bit Matters

By Paul Rixon

Welcome to another 8-bit Matters and another measure of good and not-so-good news for those of you who haven't been persuaded by Atari's lack of 8-bit commitment to abandon your machines in favour of more trendy apparatus. Beginning with the not-so-good issue, there is now only one quality magazine in the UK apart from MCHITON, providing coverage of 8-bit Atari affairs. This is due to Database Publications' sale of their Atari User magazine to Page 6 magazine, which has now incorporated some aspects of Atari User into its existing 8-bit sections. Database's exit from the 8-bit Atari arena is just part of their general selling off of 8-bit related titles (they are also getting shot of their Amstrad CPC related title too) in order to concentrate on 16-bit magazines. Personally I think that they have found less and less advertising revenue and have jumped ship before profits dropped too low. Just goes to show you should stick with the magazines which are written by enthusiasts for enthusiasts! Such as Page 6 (and Monitor) which has faithfully supported 8-bit owners for over six years and any Atari owner who is not yet a reader should make amends immediately!

More bad news arrived from various companies who either dropped or reduced their commitment to 8-bit products in response to the lack of demand from owners. Among them, Strategic Plus Software who specialise in vanguard and high quality simulation software for all popular releases. They also produce regular catalogues and newsletters, of considerable general interest to owners of the degenerated machines. Their range for the Atari included the Infocom adventures, Micropross flight simulators and also the excellent Chessmaster 3000 from Software Country. But not any more, as 8-bit Atari games have now been dropped. Also guilty of decreased support for 8-bit machines is Sales Shop who optimistically produced a glossy "winter guide" detailing various games packages, only to re-issue it in December with over a fifth of them overpriced "discontinued"! Among the abandoned titles - Druid, an excellent Gauntlet type arcade adventure from Firebird and Action, the powerful language system from CBS.

That's enough doom and gloom for this issue. On to more pleasant things, and Zepplin Games have continued to maintain exceptionally high standards in their software output. Anyone who enjoyed the brilliant Zylon will not be disappointed with Dracoon, an arcade adventure featuring some superb graphics and sound. The game has been released under Zepplin's full period "Cognate" label, and at £9.95 on cassette or £12.95 on disk, offers excellent value



for money. Atlantis Software continue to produce budget software as if they were going for a world record; the latest additions being Down Raider - a scannable clone with respectable similarity to Asterix, and Passage Up, another of their regulars the caverns' games which has you trying to save the world from thermo-nuclear war (yet again). At £1.99 each, these have got to be worth checking out, and all games should go to Atlantis for their continued Atari support.

Other recent releases which are worth looking out for include Players' Joe Blade, an addictive, budget priced arcade adventure with good graphics, at £2.99, and also a conversion of the Bally Midway arcade game Rampage from Activision. This one's priced at £9.95 on cassette, £12.95 on disk but despite its price appears to be a fairly unimpressive game from a company who have previously produced some top class software for the Atari. One company whose budget output has been prolific is Alternative Software. Amongst a host of games for the Atari are Leapster, an ex Red Rat title and California Man, yet another game for race addicts. For younger players, Alternative have now announced the release of a new title based on the Postman Pat TV series. Watch out for the black and white cat!

For those who prefer something slightly more perplexing, Lincolnet is now available from Mandrake Software and offers a chance to travel back in time to the age of chivalry when knights were bold, galloping across the countryside and rescuing damsels in distress. This Level 9 production consists of three inter-linked adventures and inside each box, details of your chance to win a gold offer. £5000 Grant may be found. The 8-bit version is test only and costs £14.95 on disk or cassette.

Have you visited your local Atari Games center? Atari Corp. say they have set them up throughout the country to promote the "massive Atari VCS" and "introducing Atari XL Games System" and are pointing hundreds of software

titles under one roof for 8-bit users. Promises made, a visit to my local designated centre revealed little more than the identical shelf of budget priced games that were present before the Atari announcement! It will be interesting to see whether the move by Atari is a genuine effort to promote the 8-bit range or just another of these schemes - like their promised Christmas TV advertising campaign - that got no further than the newspapers of the magazines. There are over 85 so called "games centers" from Aberdeen through Manchester and Cardiff to Brighton and Southampton, so why not pop down to your local one and see what's on offer? To be interested to hear what you find!

If you want to use your Atari for serious purposes, for word processing or record keeping for instance, you will almost certainly need a disk drive for your system. Obtaining one in recent months has not been easy since Atari withdrew their 5250 drive but the long awaited XFD5 is now available to match the XL range of computers. Unlike the 5250, it is capable of working in double sided, double density mode, meaning that you can now store a full 180K of data on each side of a 5.25" disk. As DOS 2.5 can't handle this amount of data, a new DOS XL has been developed to do the job. This has been criticised in some reports, but remember that there are alternatives to the Atari DOS - such as the long established SpartaDOS from KOD. (Coming soon is SpartaDOS X which will be in the form of a cartridge for the XL/XE. It will have extensions on screen menus and an archiver facility.) The XFD5 is available at £179 which is certainly not cheap and it might still be worth considering the purchase of a second-hand 1050, especially since there are various hardware modifications around, such as the US Dosdisk, which can give it similar specifications.

Before complaining about the lack of hardware available, spare a thought for Frontier Software of Harrogate who distribute a wide range of 8-bit products. Among them - ICDS printer connection, a superb value printer interface at £29.95, and the PH Connection, an alternative to Atari's 850 expansion module at £49.95. Frontier also distribute the range of CBS products, which includes Basic XL and Basic XL, two powerful languages of interest to all programmers. Full details are available from Frontier Software P.O. Box 113, Harrogate, N Yorks.

Finally, don't forget my invitation to contribute news items, comments, opinions and questions relating to any 8-bit subjects. I'm convinced there is still a sizeable 8-bit population out there but would welcome some proof of its existence! All correspondence passed on to me will be acknowledged accordingly. Happy computing!

STRIKES

By Mark Hutchinson The Puppet Masters

This has really nothing to do with that excellent book by Robert Heinlein, but it is all to do with manipulating strings, something that AT&T computers, to my mind at least, do very well.

Let's start this from the very beginning. A string is a series of numbers or characters that can be regarded as a sentence rather than a numerical variable. So how long is this piece of string? It can be anything from no characters, or elements, right up to the full size of your RAM. AT&T computers do not automatically set aside memory for a string. The length must be set at the start of the program using the command DIM (Dimension). For example, DIM A\$(25) means that the computer must set aside 25 bytes for the string called A. The string name can be from 1 to 126 characters in length, but must begin with a letter and end with the dollar sign. It cannot contain punctuation marks or special AT&T characters. It is better for programs clarity if the string name has some relevance to its use.

One of the advantages of dimensioning is that the computer can move the string to any part of its memory as it needs. This means that your string is protected from overwriting. Remember how you were told that 256 bytes in PAGE 6 were safe then were warned it could be overwritten? How you were told that anything stored above RAMTOP was safe except from certain graphics calls? Well, strings are safe, so I am told.

Now we have set aside some bytes, what do we do with them? The computer has to be told what to store in the string. This is very easy, just use the expression A\$="123ABC" and anything inside the quotes will be stored away. In this case 123ABC is a mixed string of letters and numbers but really an alpha string. (Alphabetical). To store nothing just use A\$="", this is termed a null string. A\$="" is not a null string; you are storing three spaces. A\$="123" is a numerical string and has certain potentials which will become apparent later on. Note that the quotes are the string delimiters and as such cannot be part of the string itself. This means that A\$=""" is an illegal string.

To get round this problem, AT&T allows you to print characters directly using CHR\$(). All you need to know is the decimal value for the character you want to print, in this case 34. If you are not sure what the value is then ask your friendly computer. PRINT ASC("A") will give you the equivalent number but again, unfortunately, the quote cannot be used here. I will show you more of this later, but for now let us go back to the string.

We can look at any element of the string by direct addressing. This is done by telling the computer the numerical position of the element we wish to see.

For instance, if we add PRINT A\$(2) the computer will start at position 1 in the string and print until it reaches position 2, which is really only one character. We cannot use PRINT A\$(2) because this form is only used with the DIM statement. We would now see the character 2 printed on the screen. To see more we could ask it to print A\$(5) then we would see 25ABC printed out, from the second to the fifth character inclusive. To my mind direct addressing is far simpler and much quicker than using LEFT\$, MID\$ and RIGHT\$ (the left most, middle and right most characters), commands that appear in Microsoft Basic and, I believe, all ST Basics.

We have told the computer what the string is, but what if someone else will input to the string? The first thing we must know is the length. This is done by using the LEN command. We have dimensioned the string to 25 elements but we used only 6. Someone else might just use the full twenty or more. If say, 25 characters were entered into the string (dimensioned to 25) then the last five are ignored. If the length is tested and is greater than 25 we must go back and get a proper input.

```
10 DIM A$(25)
20 INPUT A$
30 IF LEN(A$)>25 THEN GOTO 10
40 PRINT A$
50 GOTO 10
```

You can input to the string as many times as you like, it will clear the string and write in the new elements. Using a FOR/NEXT loop the string can be printed one element at a time, as shown below. As your first test you can print it in reverse.

```
40 FOR I=1 TO LEN(A$)
50 PRINT A$(LEN(I)-NEXT I
```

Remember that I mentioned that strings can have enormous lengths? This can cause a problem when you want to fill up the string. After all, you can only input on one logical line (about three physical screen lines). To see what a logical line is, go to Basic and enter 30 PRINT "1234567890" and repeat from 1 to 0 again and again. When you have almost completed the third line you will hear the computer beep. This is a warning that you have almost come to the end of the logical line. When you have, any data from here on will be ignored! Keep typing until you finish the fourth line then press RETURN. List out the program and you will find only the logical line has been entered. The way to get past this is to say on one line that A\$(1,100)= something, then on the next line A\$(101,200)= the next part and so on. The (1,100) is only an example, use your own limits but keep at them the logical line limits. Your second test is to find out the maximum length of a logical line.

Remember that all strings must be dimensioned and if the string input is bigger than the DIM figure then excess data is ignored. But if you have a large string how can you add it to without the original data being overwritten? Easy! Let us suppose that A\$ has 100 free elements and B\$ has 10. If we state that A\$="ATARI" and B\$="is great" we have to let the computer know that we want A\$ to hold both sets of data as a whole sentence. Obviously B\$ must join A\$ at the next point after the data ATARI. So we just state that the length of A\$ has 1 added to it to get the next at it, so that the first five elements (ATARI) are protected. Then the rest is equal to whatever it is in B\$. This can be done continuously until you reach the limit of A\$. This is shown below and your third test is to insert the necessary space.

ASLEN(A\$)+1)=B\$:PRINT A\$

Let us suppose that your program has a lot of mixed input, letters and numbers. If you used strings for the letters and variables for the numbers, then tried to print it all out nice and neatly in vertical lines problems would occur because you cannot find out the length of a variable. To solve this, the numbers are input as strings, which can be measured. To do any mathematical work on the numbers you must first get their value with the command VAL, e.g. A=VAL(A\$). Once the maths is all done, it can be put back into string format by

using the converse command A\$=STR\$(A). Let us look at this a bit closer. If we state that A=5, how can we print this variable as A=5.00? Try it and see. A will always be printed as just 5 when it is a variable. As a string it can become 5.00 by adding a second string that equals ".00". Easy enough when you know that A is an integer (whole number), but what about the times that it is a decimal, say 5.5?

To get round this just add 0.001 to A, change it to a string by using A\$=STR\$(A) and PRINT ASLEN(A\$). Thus A\$ becomes 5.501 and one short of the length of A\$ will be 5.50 and, because of the two figures after the decimal point, is formed as working to two decimal places. As an aside, to make any input a two decimal place figure just multiply the figure by 100, moving everything two places to the left and making the first two decimals integers. Then use the INT command, A=INT(A), to get rid of any remaining decimals and finally divide by 100 to change the integers back to decimals. Thus 123.45678 becomes 12345.678, then it becomes 12345 and finally 123.45. This works out to the following statement:

A=INT(A*100)/100

Can you work out how to get four decimal places?

Once everything has been put into a string it can be printed using PRINT. This

will eat everything left justified, that is, every line starts at the same horizontal position from the left. To do this with right justify we just subtract the length of the string from a certain position on the horizontal then use PRINT. No matter what length the string is (within the limits of the horizontal screen length), the printing will always finish at the same position. This is shown below.

POSITION 25-LEN(A\$) TO PRINT A\$

Now for a harder test. How would you centre the printing? By this I mean that the middle of the string is always in the middle of the line and the string is of equal distance from each side of the screen. Think of how you would draw a figure in the centre of a piece of paper, but remember that where a four element string will fit in nearly a five element one will never do so.

Looking back at the point where we added B\$ to A\$, if we state that B\$="5" then B\$ becomes ATAR5. But if we stated that B\$="5(3)" then the beginning of B\$ starts at the third element of A\$, i.e. B\$ becomes AR5. As this point I think it is a good idea to give you some terminology to learn. You already know what a string is. A substring is a portion of a larger string, for instance A\$(2,5) is a substring of A\$. The numbers 2 and 5 in A\$(2,5) are known as subscript or string variables. Any command that directly relates to a string (VAL, LEN, etc.) is known as a string function. This is most of the detail about strings, all you need to do now is try it all out yourself.

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Help! Has anyone got any hints or tips on the game Clock of Death. Please write if you can help me. Melodie (Kirtlewell), 39 Hinkley Crescent, Oswestry, Warr. WRO 6BQ.

1050 Circuit. Has anyone got a copy of the manual of the 1050 disk drive. Also is there a cure for a slow running disk? Contact: M.J. Bennett 26 Wrennall Rd, Goringham, Surrey, GU7 1LJ.

Power Unit. I have lost the power adapter for my Atari video computer system. Could someone tell me where I can obtain another? Write to Paul Clarke, 43 Westfield, Redway Side, Barnes, London, SW13 0PJ.

Advice. I want to get some machine code games off of DOS and SpectralDOS. I need to know how to find the load addresses and (non) initialisation

addresses. Can you help? Also has anyone got a TRUE double density Multisoft version? Contact: Ron James, 8 Lauderdale Road, Histon, Peterborough, PE2 6RQ.

For Sale. Atari 800, 1050 disk drive, 8089 printer, new ribbon and paper, 300 disks (many games), 3 disk boxes (2 lockable), books and lots of magazines. £260 the lot. Phone 6357 6576/9.

For Sale. Memory, Ring of the Ring, Melodie Man and Catboat. All for £14 or sell individually. Phone Glasgow 641 6254.

For Sale! 8008L, 1050 tape player and some tapes. Bowed £90 plus CDD. No offers. Please John on 06576 363.

Contact. I wish to correspond with any 8 bit cassette software users. I would also like to meet in person any in my area (Preston/Wakefield). Andrew Neop, 3 Powell Street, South Marley, Pottershead, W89 8DD.

Help! I cannot get my Citizen 1200 to print graphics from programs like Egoz Elite and Typewriter Elite. All the DIP switches are set to off, is this correct? Is it that these programs won't work with the Citizen? Would some kind reader write and advise me? Ian Craggs, 80 Westminster Street, Cose, Cheshire CW2 3LF.

Pen Pal! Hi! I'm an 8008L user with a disk drive and tape player. I'm into adventures, arcade, simulation etc. My address is Darryl Sp, 4 Gasteroller St, C-1 D-6 Lowest, Istanbul, Turkey. Please write!

Wanted. Issues 1 and 2 of Monitor in clean condition. Top price paid (to complete collection). Please John on 045 76 363.

Wanted. 1050 disk drive, reasonable price please for senior citizens with 665E. Tel. Annel on 0833 274607.

DynaCDD. Are there any club members using the program who could give me some information on it? Ring Brian on 0362 22182.

Help! I am looking for a program that will generate a test pattern for TV sets on my 650E. (Similar to a program for the QJ by John de Ruus published in September 86 edition of Television magazine). Contact: T. Thinks, 15 Daisy Way, High Lane, Nr. Stockport, SK6 8LF.

ST LOGO. Does any one know of an implementation of LOGO on the ST. Please write with details to R. Morgan, 13 Heronway Street, Bloor, Gwent NP23 3JL.



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CAPTAIN FIZZ Meets The Blaster-Trons
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